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THE RELATIONSHIPS BETWEEN NURSES' ROLE CONCEPTIONS AND NURSING TECHNOLOGY

by

Ⓒ H. SHARON CAMPBELL

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF NURSING

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THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled THE RELATIONSHIPS BETWEEN NURSES' ROLE CONCEPTIONS AND NURSING TECHNOLOGY submitted by H. Sharon Campbell in partial fulfillment of the requirements for the degree of Master of Nursing.

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ABSTRACT

The purposes of this study were threefold: 1) to describe nurses' bureaucratic, professional, and service role conceptualizations; 2) to describe nursing technology in terms of instrumentation and nursing unit technology; and 3) to examine the relationships between nurses' role conceptions and nursing technology. The need for this study relates to the impact that technological engineering and scientific advances have on the health care delivery system and on the roles and functions of health professionals, particularly nursing, one of the primary sources of health manpower.

The unit of analysis was the individual nurse. Eighty-nine nurses from four different nursing speciality units in one Alberta hospital participated: 16 nurses from the medical unit, 33 nurses from the intensive care unit, 14 nurses from the renal unit, and 26 nurses from the psychiatric unit. The response rate was 97.8%, constituting the population of nurses from those units selected to be included in the study.

A 53 item questionnaire was administered: 16 items were specifically designed to measure instrumentation; 9 items from the Overton, Schneck, Hazlett Technology Scale (1977) measured nursing uncertainty, variability, and instability; Corwin's Role Conception Scale (1960) of 22 items measured bureaucratic, professional, and service role conceptions; and 6 items gathered demographic data.

Data analysis was performed on the summated scores of individual nurses' responses. Statistical procedures used were factor analysis and Pearson's product-moment correlations.

Generally all nurses held high professional and service role conceptions and low bureaucratic role conceptions with some difference between nurses on various nursing units. Factor analysis of the instrumentation variable showed three factors related to the use of equipment in nursing tasks. These were labelled critical care equipment, diagnostic equipment, and equipment apprehension. These factors differed among nurses on each nursing unit with the renal nurses attaining the highest score on critical care equipment, the intensive care unit nurses on diagnostic equipment, and the medical and psychiatric nurses on equipment apprehension.

Nurses in each unit also scored differently on the nursing technology variables of uncertainty, variability, and instability. The renal nurses had the lowest score on the variability factor and the medical nurses had the highest score. In terms of uncertainty, psychiatric nurses had the highest score and intensive care nurses the lowest score. There was only a slight difference between nurses in terms of instability scores. The intensive care nurses had the highest instability score and the medical and renal nurses the lowest.

A positive relationship was shown between the service role and uncertainty variables. Diagnostic equipment was positively related to both the bureaucratic role concept and instability factor. Critical care equipment was negatively related to both variability and uncertainty. No other linear relationships were demonstrated between nurses' role conceptions and instrumentation or nursing technology. The demonstrated relationships between the technology and instrumentation measures further validated the Overton et al. Technology Scale.

The findings suggest that nursing units have different types of technology and instrumentation dependent on the kinds of patients and nursing care given, and the type of equipment used. Although no strong relationship was demonstrated between role conceptions and technology, mean scores were in the predicted direction suggesting that theoretically certain role conceptions may be associated with certain types of nursing technology. The results of this study were mainly of a descriptive nature and further research regarding role conceptions and instrumentation is suggested.

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CHAPTER I

INTRODUCTION

One of the predominating topics in nursing literature today is the "expanding role of the nurse". Three main forces, the increasing professionalization of nursing, the movement toward holistic patient care, and the changing health care delivery system, have contributed to this development. Role definition is in response to environmental stimuli (Lindesmith & Strauss, 1956), and changes in environments may, therefore, be contributing factors to both role conceptions and role behavior. As Parsons (1964) states:

> A change in the relation of a social system to its environment...in the first instance impinges on the definition of the situation for one or more classes of acting units and then has further repercussions which can put pressure for change on the normative institutional pattern (p. 89).

Changes in medical and hospital technology may also be important factors in defining nursing roles. Despite much discussion in the literature, there is little empirical evidence to indicate that nurses' roles and nursing technology have been studied as possibly related variables. The purpose of this study, therefore, is to examine the relationships between technological variables and nurses' role conceptions in selected hospital nursing units surmised to have varying types of technology.

Statement of the Problem

One of the major factors influencing the nature of health care in the last 25 years has been the development and expansion of new technologies. The application of scientific and technical knowledge to the health care delivery system has affected the diagnosis and treatment of complex disease conditions, altered the characteristics of the patient population which utilizes health services, affected the organizational structures of hospitals, and placed greater demands on health care professionals for higher levels of knowledge and performance skills.

An indication of the extent to which new technologies may have contributed to improving the health of Canadians is illustrated in the following statistics. The infant mortality rate decreased by 42% between 1966 and 1976 from 23.1 to 13.5 per 1000 population (Statistics Canada, 1978). In 1961, 7.6% of the Canadian population was over the age of 65 years, by 1975 this proportion had increased to 8.6% and is expected to be nearly 10% by the end of the century. Gerontological nursing has recently become a separate speciality and the use of medical science to successfully control and treat previously fatal diseases has in part been responsible for this trend. Increased life expectancy also is reflected in the typically "geriatric" illnesses that rate among the five leading causes of death; heart diseases, cancer, stroke, accidents, and respiratory diseases (Statistics Canada, 1975). The five main reasons why patients required acute care hospital services in 1970 were: 1) genito-urinary diseases, 2) accidents, 3) tonsillectomy and adenoidectomy, 4) heart diseases, and 5) cancer (Statistics Canada, 1970). Four of these diseases have directly benefitted from the advances in medical technologies. Concomitantly, there has been an increase in specialized clinical nursing skills as nurses work alongside physicians in more specialized medical areas.

The need to deal with increasing role specialization among health professionals, the application of scientific knowledge, and extensive use of complex technical equipment has been a major factor in the bureaucratization of hospitals. As hospital structures have moved toward a greater division of labor and hierarchial lines of authority, there has been a fundamental change in the nurse's role (Reissman & Rohrer, 1957, pp. 11-14). As Reissman (1957) states the "specialization of medical technology... [and] the consequent demands of all these upon the nurse, have operated to date the traditional image" (p. 12).

Historically, the image of the nurse as "comforting angel of mercy and handmaiden to the physician" that existed in pre World War II private practice (Brown, 1966) has evolved more toward a technical-managerial role image within the hospital bureaucracy (Saunders, 1954). Mauksch (1966) described the care, cure, and coordination functions of nursing within the organizational structure (pp. 109-137). Skipper (1965) identified the nurse's role as a combination of both "instrumental" and "expressive" functions (pp. 40-47), as did Johnson and Martin (1958). These early descriptions of the nurse's role centred on the nature of nursing tasks; specifically those directed toward meeting the physical and psychosocial needs of the patient, and those of an administrative nature.

Focus on value systems as they influenced role definition led Habenstein and Christ (1955) to identify three role types; the professionalizer, the traditionalizer, and the utilizer. The existence of two value systems with different norms and expectations (management and service) created a role conflict between the idealistic and realistic image of the nurse (Benne & Bennis, 1959), which subsequently became the focal point for further examination of the nursing role (Corwin, 1960; Kramer, 1966).

Corwin's (1960) role typology; professional, bureaucratic, and service, was derived from the value nurses placed on the characteristics of a profession, a bureaucracy, and a service occupation, and whether nursing loyalties were consistent with the goals of each of these organizational forms. Much of Corwin's work was based on his observations of the growing professionalization of nursing as a whole, nurses' roles, and nurses' functions within the increasingly technically oriented hospital bureaucracies.

In looking at the concept of technology in the hospital setting it is necessary to go beyond the measurement of equipment and work flow patterns, although these do comprise a visible component of hospital technology and have received much literary attention (Brown, 1976; Birckhead, 1978; Lenihan & Abbey, 1978). Since the structure and goals of the organization may affect the role definition of the workers, it is helpful to look at technology from an organizational perspective.

The concept of organizational technology in human service organizations has been defined by Perrow (1967) as including those actions that are performed upon raw materials in order to bring about a predetermined change. Perrow's conceptualization of technology included two aspects; 1) the nature of the search process or degree of routineness or nonroutineness of the problem and solutions; and 2) the number of exceptional cases encountered. Interacting with these technological factors are the characteristics of the raw materials; understandability, stability, and variability (pp. 195-197). Overton, Schneck and Hazlett (1977) applied this framework to the hospital setting at the level of the nursing sub-unit. Three technological variables were identified for nursing subunits incorporating factors relating to the characteristics of the raw materials (patients); techniques (nursing tasks); and task interdependence (knowledge and search behaviors).

The Overton et al. study is one of few to focus on nursing technology as an organizational concept. Most studies of nursing technology to date have focused upon tasks, functions, and procedures (Ellis, 1977). Benner and Kramer (1972) were among the first to relate work environments and nursing roles. Although their study did not examine technology per se, it was aimed at investigating role conceptions in special care units, traditionally associated with high equipment technology.

Scope of Investigation

The scope of this study comprised the investigation of nurses' perceptions of their technology and role conceptions in selected nursing specialities. Following the work of Overton et al., this current investigation focused upon four variables of technology; instrumentation, uncertainty, instability, and variability, and their relationships with nursing role conceptions, i.e., professional, bureaucratic, and service. The three variables defined by Overton et al., uncertainty, instability and variability, aimed at identifying the characteristics of nursing technology in terms of complexity of patient problems, fluctuations in condition, and diversity of presenting illnesses. Selected nursing tasks as components of technology were defined in terms of the likelihood of success, frequency of nursing observations, and variety of responses to patient needs.

The technology used to achieve organizational goals involves not only knowledge, thought processes and action, but also the equipment needed to perform the necessary tasks. Accordingly, in addition to Overton et al.'s measurement of technology, a new measure was developed called instrumentation. Instrumentation focused on the types of equipment or mechanical devices used in nursing speciality units to assist in the diagnosis and/or treatment of patients. Equipment external to direct patient care, such as computer information services and automated messenger services were excluded from the study. The measure of instrumentation focused on the complexity of the equipment, the purposes for which it was used, such as monitoring or life support, and the use of equipment in nursing tasks.

Three types of nursing speciality units shown by Leatt and Schneck (1980) to have significantly different technology scores on the Overton et al. Technology Scale were selected. These were intensive care, medical, and psychiatric units. In addition, the renal hemodialysis unit was included on the basis of being a chronic care facility assumed to incorporate a high level of instrumentation. Nurses from these four types of nursing specialities were included in the research.

Nursing role conceptions were measured using Corwin's (1960) Role Conception Scale. Role conceptions were assumed to be based on the values and beliefs individuals (in this case, nurses) hold about a social position or occupational status. Corwin's professional, bureaucratic, and service role conceptions were intended to measure loyalty to organizational goals and structures, and individual and patient-centred beliefs.

Research Objectives

The specific research objectives for this study were: 1) to develop a measure of instrumentation which could be used for selected nursing specialities; 2) to explore nurses' perceptions of technological uncertainty, instability and variability in selected nursing specialities; 3) to examine nurses' role conceptions in terms of the extent to which they conform to a bureaucratic, professional, or service role conception in selected specialities; and 4) to explore the relationships between nurses' conceptions of their technology and their roles in selected specialities.

The following expectations were held at the onset of the study concerning the relationship between technology and role conception:

1) Nurses who have a professional role conception will score:
    - high on instrumentation
    - high on uncertainty and instability
    - low on variability
2) Nurses who have a bureaucratic role conception will socre:
    - high on instrumentation
    - low on uncertainty and instability
    - high on variability
3) Nurses who have a service role conception will score:

- low on instrumentation
- high on uncertainty and variability
- low on instability

4) Nurses working in units with high degree of instrumentation will have low uncertainty, high instability and high variability.
5) Professional, bureaucratic, and service role conceptions will be independent of age.
6) The length of nursing experience will be related to bureaucratic role conception.
7) Level of education will be related to role conception:
   - bacclaureate degree nurses will have a high professional role conception
   - diploma nurses will have a high bureaucratic role conception
   - level of education will be independent of service role conception

CHAPTER II

REVIEW OF THE LITERATURE

The purposes of this review are: 1) to describe the role of the nurse in terms of the literature relating to role conceptualization and role behaviors i.e., the beliefs, functions, and tasks of nurses; 2) to describe the technology of nursing units from the viewpoint of organizational theory and with particular emphasis upon equipment technology; and to review pertinent empirical studies examining role and technology.

The concept of role is defined as the behaviors expected of a person occupying a formal position within a given social system (Linton, 1936; Sarbin, 1954). Role behaviors are those observable actions performed by individuals; role conceptualization, on the other hand, is the process of internalizing a set of values and beliefs about a social position (Biddle & Thomas, 1966). Both role behavior and role conceptualization are related to the expectations and reactions of others, and to the social or organizational structure in which the position formally exists.

Studies examining the role of the nurse have generally followed one of two avenues of thought. Research has either described the role concepts of nurses and the process of role conceptualization; or secondly, the tasks and functions inherent in nursing performance. Studies of the former type have largely been performed to explore the values and beliefs of nurses, particularly stressing the professional-bureaucratic role conflict (Corwin, 1960; Kramer, 1966-1974) and the socialization of student nurses into the work situation (Davis & Olson, 1964). These studies are primarily based on the sociological framework of role theory. Other studies of the nursing role in relation to social functioning have focused on the role of the nurse as "mother-surrogate" or "healer" (Schulman, 1960), the "expressive-instrumental" functions of the nurse (Johnson & Martin, 1958; Skipper, 1965), and the "care, cure and coordination" role discussed by Mauksch (1965).

The second approach to the study of nursing has been by attempting to define nursing by its tasks and its role behaviors. Hughes et al. (1958) in discussing the professional status of nurses described both the tasks and role behaviors assumed by nurses. Brown (1966) saw nursing practice as highly technical and task oriented, directed toward providing patients with the necessary assistance or treatment procedures. Saunders (1954) described the managerial and patient-centred role of the nurse. Recent literature discussing the "expanded role" of the nurse outside the traditional hospital setting has generally described specialized nursing functions such as those associated with the nurse practitioner (Wiedenbach, 1965), physicians assistant (Bergman, 1971) and clinical nurse specialist (Simms, 1963). Anderson (1973) reports the types of tasks perceived by nurses, physicians, and patients to comprise both the functions and role of the nurse. A detailed review of these studies will not be included since the focus of the present investigation was the role conceptualizations of nurses working in hospital units. Where appropriate however, studies of nursing functions will be reviewed.

Role Conceptions

Reissman and Rohrer (1957) discussed three historical trends which seemed to have been influential in determining nurses' role formation. These trends were identified as 1) the move toward professionalization in nursing, 2) the transfer of duties and responsibilities from the physician to nurses, and 3) the growth in bargaining power of the nursing profession as a whole with other organized groups such as hospital associations (pp. 8-11). These trends were related to the specialization and growth of hospital based health care, and the integration of nurses into a bureaucratic organization.

The increasing professionalization of nursing and the drastic change from private duty employment to full time hospital employment of nurses in the 1940's to 1950's has been one of the dominating forces influencing the role concept of nurses. The literature on professionalism is extensive and will not be reviewed in full here. However, a consideration of the characteristics of professionals and their function in bureaucracies will be helpful in clarifying the process nurses undertake in developing a role conceptualization.

Professionalism and Bureaucracies

Wilensky (1964), in examining the process of professionalization delineates several characteristics necessary for an occupation to obtain professional status. These attributes include: technical skills for the occupation based on knowledge acquired through extensive training; the formation of professional associations; development and adherence to a code of ethics; a dedication to work, and autonomous practice. Goode (1969) has stated that the two central criteria of professions include: 1) a basic body of abstract knowledge, and 2) the ideal of service.

Possession of abstract knowledge gives a profession power and authority over its practice (Katz, 1969, p. 63). Katz believes that nursing does not possess or control a body of nursing knowledge distinct from other disciplines and is, therefore, unable to develop an autonomous practice. These two factors, Katz claims, make nursing a semi-profession rather than a full fledged profession. Stinson (1969) has even suggested that nursing may be undergoing a process of deprofessionalization.

The inability of nurses to practice autonomously in hospital settings is, in part, a function of the bureaucratic structure of these organizations. The dimensions of a bureaucracy, based on Webers' classic theory (1947) include an elaborate division of labour, hierarchy of authority, impersonal relationships, a system of rules and regulations governing specific procedures, and a necessity for technical competence (Hall, 1968). Role specialization is the hallmark of a bureaucracy, and the characteristics of bureaucratic organizations are such that organizational stability tends to be considered more important or receives higher priority than the needs of individuals within the structure.

It is generally assumed that the orientations and beliefs of professionals and bureaucracies are incompatible (Blau & Scott, 1962). The incompatability within organizations has been thought to occur because of differences in the organizational focus and/or the orientation and goals of the two groups. "The bureaucratic type of organization is ideally focused on the specific activities of the job, whereas the professional type of organization is ideally focused on the fundamental goal of serving clients" (Corwin, 1960, p. 150). A potential source of conflict then arises when the value and belief systems of individuals

5

such as professionals are in opposition to the value and belief systems of the organization (bureaucracy). Such has been the case in nursing as the move toward professional status within the context of bureaucratic work settings has brought together, in conflict, these two value systems.

Nursing Roles

Parson (1964), states that organizations, in order to meet their goals, have a tendency to separate "instrumental" and "expressive" functions. Instrumental functions are generally directed toward meeting organizational goals, and expressive functions toward meeting individual goals.

Johnson and Martin (1958) explored the expressive role of the nurse in relation to both the doctor-nurse, and nurse-patient relationship. Extensive interviews with nursing faculty and nursing students over a four year period led to the conclusion that nurses' primary function was expressive rather than instrumental, and within her expressive role such things as the gratification of patient needs, release of tension and stress associated with illness, and maintenance of a harmonious nurse-patient-doctor relationship were of primary importance (p. 39). The technical or instrumental functions were delegated to the physician as his primary responsibility.

Skipper (1965) reexamined the issue of expressive and instrumental functions. Based on results of a questionnaire administered to nursing students and staff at one hospital he concluded that nurses see both functions as important and suggested that the nursing role is probably a combination of both technical activities and communication skills.

Brown (1966) in a descriptive article based on historical trends and future projections about nursing equated the functional role of the nurse with the performance of technical skills and tasks, and the professional role of the nurse with the "caring" aspect of nursing, especially in providing patient comfort and psychosocial support. Concern with the professional status and organizational position of nursing in the 1950's led early researchers to consider value-based role definitions. Habenstein and Christ (1955) conceptualized three role types, the professionalizer, the traditionalizer, and the utilizer. Nurses who subscribed to the role of professionalizer focused upon the knowledge base of medical and nursing practice. Their practice was directed by a primary interest in the application of medical science and knowledgeable decision making in the clinical setting. The traditionalizer, on the other hand, directed her practice toward the human concerns of the patient, rather than the acquisition and application of advanced knowledge. This role was characterized by devotion to the patient as well as to the traditions of the hospital and medical profession. Nurses holding the utilizer role were task oriented and judged their performance in terms of job efficiency and task accomplishment.

Corwin (1960) identified three role types similar to Habenstein and Christ, based on differences in the value system and characteristics associated with bureaucratic, professional and service organizations. His work will be reviewed in more detail since it forms the basis for the present investigation.

In studies involving 289 nursing students and graduates of diploma and baccalaureate programs, Corwin examined nurses' role conceptions, their degree of role deprivation, and their mobility aspirations. Corwin found that nurses with a bureaucratic role concept placed emphasis on administrative tasks, valued routine and standardized procedures, and gave primary loyalty to the hospital heirarchy and hospital goals. Nurses with a professional role concept on the other hand, valued autonomy from their employer and instead had primary loyalty to the professional organization, showing a committment to continuing education and advanced training. Those nurses who held a service role conception were loyal to the patient, and primarily concerned with patient centred care activities. Role deprivation occurred after graduation for those nurses who experienced a discrepancy between their ideal role concept and the actual role performances. Corwin's findings supported his prior hypothesis that the values of the professional and bureaucratic role do conflict. He also found that congruence between the values of the organization and the values of the nurse were influenced by the socialization process that occurred during training. Based on the assumption that baccalaureate nursing education was "professional" in nature, and diploma nursing education "bureaucratic", Corwin found that role deprivation was greater for baccalaureate graduates than diploma graduates. The resulting role conflict for graduates was found to be associated with both lateral and horizontal mobility aspirations, and in some cases an exodus from nursing (pp. 333-338).

Further studies by Corwin and Taves (1962) of 195 nursing graduates and students demonstrated that although baccalaureate nurses held a higher professional role concept than diploma nurses they were less certain of their role concept and less interested in obtaining promotions within the hospital bureaucracies. Students held higher service concepts than did graduate nurses, and diploma nurses were higher than baccalaureate graduates in their service concepts.

The primary theme underlying Corwin's work was the difference between professional and bureaucratic value systems as exemplified by educational preparation, and the effect of this on nursing roles, especially in relation to role deprivation, role conflict, and the mobility aspirations of nurses.

Kramer (1966), utilizing Corwin's Role Conception Scale measured bureaucratic and professional role conceptions and role deprivation of newly graduated baccalaureate nurses in one class (N=79). The focal point of Kramer's study was the role conflict and role integration experienced by degree nurses at three months and six months after entering practice. She found that for nurses with high professional role concepts exposure to bureaucratic work principles simultaneously decreased their loyalty to professional ideals, increased bureaucratic role conceptualizations and increased role deprivation. These results suggested that the extent to which nurses' role conceptions were in conflict with the organizational structure and goals related to the level of frustration, job dissatisfaction, and mobility within and outside of nursing.

Bevis (1973) examined the relationship between role conceptions and extent and nature of participation in continuing education activities for 106 baccalaureate graduates employed in hospitals at least one year. Utilizing Corwin's Role Conception Scale it was found that the service component was the primary influence on participation in continuing education and that the service and professional role concepts were complementary. This suggested that the service component of nursing was as important as the professional component, and should be examined in relation to other variables such as job satisfaction, stress, or committment to nursing.

Interest in the influence of highly specialized and technical units prompted Benner and Kramer (1972) to examine the role integration behavior of 54 baccalaureate nurses in special care units (SCU) as compared to 110 baccalaureate nurses who worked in regular hospital units. The special care units selected were adult medical and surgical intensive care units, coronary care units, pediatric or nursery intensive care units, open heart special care units, and postrenal transplant units. These units had the following characteristics: the staff consisted of primarily registered nurses most frequently working on a case assignment; there was a high life and death potential necessitating rapid decision making, immediate intervention, and autonomous action (p. 22). The two major questions addressed in this study were: 1) to what extent the atmosphere and nursing responsibilities of a SCU were congruent with the professional role concept purported to be held by baccalaureate nurses, and 2) was it possible to combine expressive and instrumental functions in the care of patients in a SCU. In that this is one of very few studies to empirically examine nursing role conceptions in relation to specific working environments (special care units as opposed to general hospital settings) the results have particular implications for the present investigation. The findings of this study did not support the hypothesis that SCU nurses would have higher professional and bureaucratic role concepts, or lower role deprivation scores, although these nurses did have higher Integrative Role Behavior scores than nurses working on regular hospital units. Interestingly, the majority of nurses stating it was possible to combine the expressive and instrumental functions of the nurse in special care units were no longer working in these areas. These findings suggested that the environment of SCU's tended to increase role conflict and inhibit the synthesis of expressive and instrumental functions. Benner and Kramer stated that the ability to integrate the professional and bureaucratic roles, and thereby reduce role conflict, is a necessity for baccalaureate nurses working in intensive care units. Lewandowski and Kramer (1980) looked at the effectiveness of a special orientation program in affecting the role transformation of 213 new graduate nurses working on four different nursing units and measured, among other things, changes in the professional and bureaucratic role conception scores over nine months. They found that the type of unit nurses were working on made little difference in the change of role conceptions but when rank ordering the units in terms of specialization, found that the higher the unit specialization the greater the increase in bureaucratic role conception and the greater the decrease in professional role conception. Units were rank ordered on the basis of logical assumption with special care units being most specialized, and decreasing in specialization for parent child, medical-surgical speciality, and medical-surgical units.

An important implication of Lewandowski and Kramer's study, and particularly relevant to this study, is the need to empirically measure the degree of specialization of nursing units.

In looking at the role of the nurse within the organizational context of the hospital Mauksch (1966) outlined three functions the nurse assumes. The cure process is a dependent function primarily within the realm of the physician, involving direct therapeutic practices, and responsibility by the individual. The care processes are the independent functions of the nurse and are geared toward providing for the psychosocial and physical needs of patients. Responsibility is to the bureaucratic structure thereby maintaining the system. The coordination role represents the nurses' obligation to provide continuity of time and place (p. 120) and, hence, assume a managerial role in relation to other transient specialists, the social organization, and the patient.

Mauksch's delineation of nursing roles are based on the impact of organizational structure on role definitions within that organization. Whereas role conceptualizations are an internal force acting on role definition, the structure and goals of organizations are external forces acting on role definition. A thorough understanding of role cannot be gained without an awareness of outside forces important in shaping roles.

Technology

Inasmuch as the structure and goals of the organization affect the role definition of the workers, it is helpful to look at technology from an organizational perspective. Technology is viewed as one of the key variables with potential for affecting the structure and goals of an organization (Hasenfeld & English, 1977, p. 271). The concept of organizational technology is generally more inclusive than that suggested by literature which describes "technological innovations" or discusses "the effects of technology change".

The dimensions of organizational technology have been conceptualized according to production output (Woodward, 1965), feedback systems (Thompson, 1967), work processes (Hickson, Pugh & Physey, 1969), actions to alter raw materials (Perrow, 1967), and routineness of work (Hage & Aiken, 1969). In looking at the concept of technology in the hospital setting it is necessary to go beyond the measurement of equipment and work flow patterns. As suggested by Hickson et al. (1969) there are actually three components of technology: 1) the knowledge base, 2) the nature of raw materials, and 3) the equipment and operations performed. Hasenfeld and English (1977) discuss the degree of indeterminancy and complexity of technologies in human service organizations.

Human service organizations such as hospitals tend to have indeterminant technologies because of a lack of knowledge about cause-effect relationships, although there are degrees of determinancy. A highly determinate technology provides explicit direction for health workers to assess and implement care, and therefore the more structured the work can be. Indeterminate technologies on the other hand, do not have the knowledge base from which to make judgements about cause-effect relationships, and care cannot be planned with as much assurance of success (Hasenfeld & English, p. 272).

Perrow's conceptualization of technology includes the conditions or work, the type of raw material, and the degree of routineness or nonroutineness of task behaviors. Technology is defined as the actions an individual performs upon raw materials with or without the aid of tools to bring about a desired change (1967, p. 195). Raw materials in human service organizations are the people who require the services of the organization, and in the hospital are those patients admitted for care. Two aspects of technology explored by Perrow are the degree of variability of work and the extent to which search procedures are analyzable. Variability refers to the number of exceptional cases encountered; whether or not the raw materials were stable and uniform. The analyzability of search procedures refer to the extent that knowledge about raw materials is known and available to be used to transform the material into the desired end product.

In a study of 16 health and welfare agencies Hage and Aiken (1969) looked at the routineness of work in relation to social structure and organizational goals. Routineness was described as how much variety there was in work, as separate from job codification (job definition), rule observation, or specification of work procedures. As routineness of work increased there was a greater amount of centralized decision making and goals became directed toward efficiency and quantity rather than quality of service to clients (pp. 298-313).

In looking at the technology of eight nursing units Kovner (1966) measured two aspects of Perrow's framework, variability and predictability. It was found that units varied considerably in relation to the complexity of work and decision making (processing) and complexity of communication skills based on the degree of variability and predictability. Three categories of nursing unit technology emerged: 1) intensive care and neurosurgery, 2) medical teaching and rehabilitation, and adult psychiatry, and 3) rooming-in, medical-surgical, and rehabilitation.

Overton et al. (1977) applied Perrow's theoretical framework to the hospital setting at the level of nursing subunits. Data from seven types of nursing units (N=71) were analyzed to provide a measure of three distinct technological variables. The level of analysis was the nursing unit which provided a measure of organizational technology, as opposed to individual technology.

Three dimensions of technology were identified incorporating factors relating to the nature of raw materials (patients), techniques (nursing tasks) and task interdependence (knowledge and search behaviors). "Uncertainty" related to the degree that there was insufficient knowledge available about the raw materials and the probability of success in applying techniques. The uncertainty variable referred to the degree to which patients were not understood in that they presented complex health problems. Nursing tasks associated with the uncertainty factor involved intuitive judgement and independent decision making. "Instability" referred to the unpredictable fluctuations in raw materials and techniques. This was defined in terms of the number of emergencies and physiological fluctuations, and the frequency of nursing observations. "Variability" described the variation among raw materials and techniques and was related to the degree to which patients presented different health problems and individualized patient care was planned. Nursing subunits were differentiated on the basis of their levels of technology as measured by these three variables.

Leatt and Schneck (1980) replicated the Overton et al. study using nine types of nursing units. The same technological variables emerged; uncertainty, instability, and variability, suggesting some degree of construct validity. An independent measure of types of equipment in use on nursing units correlated with the instability factor providing evidence of predictive validity. As well, nursing units studied by Leatt and Schneck showed the same pattern of differentiation in relation to these dimensions of technology, thus establishing support for the generalizability of the Overton et al. Technology Scale.

Instrumentation

As well as examining technology from an organizational perspective it is helpful to examine the level and types of equipment involved in performing the work. This aspect seems particularly imperative because it is the visible component of technology and has received much literary attention (Brown, 1976; Lenihan & Abbey, 1978; Birckhead, 1978). Although there have been many advocacy articles about technology and nursing practice, few have focused on variables other than technical equipment. Generally technology as related to nursing practice is seen in terms of technical skills. Leonard and Rogers (1978) surveyed 40 graduate and student nurses to determine how nursing functions were evaluated in terms of traditional or technical skills. Traditional skills were seen to be those of providing physical and emotional support for the patient, and technical skills those utilizing technological equipment to provide care. Nurses ranked the traditional skills as very important, reflecting the service ideal and importance of individualized patient care. It was found however, that these functions were often delegated to nursing aides, creating a conflict situation between the ideal and real working situation.

Farmer (1978) asked nurses in different hospital units to identify technological objects (instruments and machines) in their work area, and to measure the average number of encounters nurses had per hour with these objects. Units with many mechanical supports were ranked highest. No conclusions were drawn relating nursing practice or patient care to this measure.

In writing about the "technotronic age", Birckhead (1978) cites a study by Ogonowski (1976) in which computer related activities were compared to direct and indirect patient care activities. Nurses were found to spend more time on computer activities than on patient teaching, but less than on bedside care activities. No conclusive results were obtained although data indicated that computer access did not necessarily increase nurse-patient contact time.

Although these studies were not rigorous research designs they are a beginning attempt to examine the impact of technology on individual nursing practices. Benner and Kramer (1972), as described earlier, empirically studied the role conceptions of nurses in high technology areas. The framework for that study was the degree of role conflict and role integration of professionally educated nurses working in units in which the organizational goals and structure, were thought to be more congruent with professional values and beliefs.

Summary

Most studies related to nurses' role conceptions have focused on the interaction between professional and bureaucratic value systems. Professional value systems have generally been examined in relation to educational preparation and bureaucratic value systems in relation to hospital organizational structure (Corwin, 1960, 1962; Kramer, 1966). The general focus has been on the role deprivation, role conflict, and migration patterns of professional nurses within a bureaucratic structure. Bevis (1973) examined role conceptions as related to continuing education activities of nurses; Benner and Kramer (1972) examined the role deprivation and role conceptions of nurses working in different types of nursing units, and Lewandowski and Kramer (1980) examined the role transformation abilities of nurses in four nursing units with different degrees of task specialization.

Other studies of nursing roles have focused on the functional tasks of nursing care (Anderson, 1973) and on the interprofessional health team and coordinating role of the nurse (Mauksch, 1966). Recent literature focuses on the "expanded role of the nurse" particularly the clinical nurse specialist (Padilla, 1978).

The major direction for studies of the role conceptions of nurses have come from an awareness of the potential conflict that may occur with the introduction of professionals into a bureaucratic work setting. Although this is an important factor, other organizational variables such as technology may also influence role conceptualization.

Studies of nursing technology have taken two directions; 1) a focus on the organizational level; the nursing unit rather than the individual nurse and 2) a focus on equipment technology. On an organizational level Kovner (1966) examined predictability and variability of nursing tasks on different nursing units. Overton et al. (1977) looked at the uncertainty, variability, and instability of patients and nursing tasks, again on different nursing units. In terms of equipment technology studies have examined labor saving devices in relation to patient contact time, the computer in Ogonowski's study (1976). Studies have also looked at the kinds of equipment used (Farmer, 1978).

Given the changes in nursing care as a result of increasingly complex patient diagnoses and treatments, and the increasing use of equipment in health care systems, it would seem appropriate to study technology in relation to nurses and nursing. The next step in studying the impact of technology on nursing would be to examine nursing roles and behaviors as related to different kinds of organizational and equipment technologies.

CHAPTER III

METHODOLOGY

As indicated in Chapter I, the main purpose of this investigation was to examine and describe the relationships between technological variables and nurses' role conceptions on selected nursing units. Specifically, it was an attempt

1) to empirically describe three role conceptions: professional role, bureaucratic role, and service role;
2) to empirically describe four variables of technology: variability, instability, uncertainty, and instrumentation; and
3) to examine the relationships between the above role conceptions and technological variables.

Definitions

Technology

The concept of technology refers to those activities performed by an organization to bring about changes in the raw materials (Perrow, 1967). Three principal components of the technology of organizations are: 1) the knowledge base and rationale; 2) the nature of raw materials; and 3) the techniques and equipment used (Hickson et al., 1969). Within hospital organizations patients are considered to be the raw materials. The nursing functions and techniques utilized in the care of patients comprise one measure of nursing technology (Overton et al., 1977). A second measure of nursing technology referred to the types and complexities of the equipment used in providing patient care.

The three technological variables defined by Overton et al., uncertainty, instability, and variability, were defined as follows:

1.1 Degree of Uncertainty

Theoretical Definition: The degree to which there is insufficient knowledge about the nature of raw materials and about the probability of success when techniques are chosen and applied (Overton et al., 1977; Perrow, 1967).

Operational Definition: The number of patients with many diagnoses and presenting complex nursing problems. The degree to which nursing techniques are complex, rely on nurses' intuition and feedback from patients' conditions and moods (Kovner, 1966; Overton et al., 1977).

1.2 Degree of Instability

Theoretical Definition: The degree to which there are fluctuations within raw materials and fluctuations within techniques in terms of their probable success (Overton et al., 1977; Perrow, 1967).

Operational Definition: The number of patients whose physiological conditions fluctuate, requiring frequent nursing observation and attendance. The number of emergencies. The degree to which nursing techniques consist of monitoring the physiological instabilities (Kovner, 1966; Overton et al., 1977).

1.3 Degree of Variability

Theoretical Definition: The degree to which there are variations between raw materials and diversities in techniques which can be successfully applied (Overton et al., 1977; Perrow, 1967).

Operational Definition: The number of patients who present a wide variety of health problems, with a range of severity. The degree to which nursing techniques are varied for each patient (Kovner, 1966; Overton et al., 1977).

The measure of instrumentation was related to the types of equipment used in providing patient care. This focused on the complexity of the equipment, the purposes for which it was used, such as life support and/or monitoring, and the extent to which equipment was used in performing nursing tasks.

Instrumentation was defined as:

1.4 Degree of Instrumentation

Theoretical Definition: The degree to which mechanical or electronic machinery is used to assist or replace some or all aspects of human functioning. This may be in terms of the energy requiring, information processing, or intelligence operations of man (Amber & Amber, 1962).

Operational Definition: The types and function of equipment (i.e., monitoring or life support); physical characteristics such as safety features, alarms, and prominence in patient care areas. The degree to which nurses require special knowledge to operate the equipment; the degree to which equipment is used in providing patient care.

Role Conceptions

Role conceptions are the expectations and beliefs an individual or group holds about an occupational role at a given time and includes cognition, values, attitudes and behaviors of the person(s) (Corwin, 1960). The three role conceptions measured in this investigation were defined as follows:

2.1 Professional Role Conception

Theoretical Definition: This refers to the occupational principles which transcend the location of a specific hospital; primary loyalty is to a professional nursing association (Corwin, 1960; Kramer, 1962).

Operational Definition: The acquisition of a formal body of knowledge, use of medical and technical skills, and independent decision making (Corwin, 1960).

2.2 Bureaucratic Role Conception

Theoretical Definition: The administrative rules and regulations which describe the nurses' job in a specific organization; primary loyalty is to the hospital administration (Corwin, 1960; Kramer, 1967).

Operational Definition: The number of written standards, and procedures, routine functions, amount of time spent on administrative tasks, and an emphasis on efficiency.

2.3 Service Role Conception

Theoretical Definition: Nursing conceived as a spiritual calling; primary loyalty is to the patient (Corwin, 1960; Kramer, 1967).

Operational Definition: The degree to which nursing care is individualized, patients are involved in planning care, and the spiritual, mental, and emotional comfort of the patient are considered.

Unit of Analysis

Since role conceptions are held by individuals occupying a social position, the unit of analysis for this study was the individual nurse. Nurses employed at the staff level on hospital nursing units were studied. Nursing units were defined as "geographic in-patient areas of a hospital having an assigned number of beds, its own complement of regular nursing staff with shared goal(s), formal hierarchial structure and arrangements for getting work done; that is, a bounded administrative and social unit" (Overton et al., 1977).

Nurses from four distinct speciality units comprised the study population. The types of nursing units selected had previously been identified as having distinct nursing technologies (Leatt & Schneck, 1980). The units selected were:

1) medical unit (MED): comprising of adult patients with a variety of diagnosis admitted for investigation or treatment of non-acute medical problems;

2) intensive care units (ICU): comprising of adult patients admitted for multi-system body failure requiring intensive therapy;

3) renal unit (RENAL): comprising of adult patients with end stage renal disease requiring long term outpatient hemodialysis treatments; and

4) psychiatric unit (PSYCH): comprising of adult patients requiring active psychiatric treatment.

Population

This study was restricted to one acute care hospital located in Edmonton, Alberta. The study population consisted of all fulltime registered nurses employed at a staff level on the four selected nursing units. Nurses in middle management positions, such as head nurses, assistant head nurses, or instructors were excluded on the a priori assumption that their role concepts would differ due to their organizational position and different responsibilities and role expectations. Because of the specialized nature of renal, intensive care, and psychiatric units, there was only one of each of these types of units in the hospital. Accordingly, all eligible nurses working on these units were included in the study. One medical unit was randomly selected from four medical units in the hospital and all nurses on this unit were included in the study. Thus, the study population (N=89 nurses) was composed of 14 nurses employed on the renal unit, 33 nurses from the intensive care unit, 26 nurses from the psychiatric unit and 16 nurses from the medical unit (see Figure 1).

Figure 1: Study Population

Type of Nursing Unit	Number of Units	Number of Nurses
MED	1	16
ICU	1	33
RENAL	1	14
PSYCH	2	26
TOTAL	5	89

Research Instrument

For this investigation, a 53 item questionnaire was designed to measure nurses' role conceptions and nursing technology. Demographic data, such as education and nursing experience, shown by Kramer (1966) to be important variables in role conceptualizations, were also included. The instrument is shown as Appendix A.

Role Conception

Nurses' role conceptions were measured using a modification of Corwin's instrument (1960). Corwin's role conception tool consisted of 22 hypothetical situations arranged in three Likert type scales. The instrument was designed to measure respondents loyalty to the values and ideals of the bureaucratic, professional, and service role. Six items measured the bureaucratic component, and eight items measured each of the professional and service components. Each item was composed of two parts, a question concerning what should be the ideal for nursing, and a question concerning what actually exists in nursing. According to Corwin, in calculating role conception, only the "ideal" responses are considered. The "actual" responses are used to provide a measure of role deprivation, and are not used to measure role conception.

Corwin's instrument used a five point scale ranging from "strongly agree" to "strongly disagree". The arithmetic sum of responses to items measuring a role concept provided a total role concept score. The reliability of Corwin's instrument was examined by investigating the internal consistency for each scale. The mean differences of the upper and lower 25% of the total scale distribution were calculated. The direction of differences was as predicted and statistically significant at .05 level (Corwin, 1960, p. 212). Face validity was established by submitting the questionnaire both to a pre-test group of nurses, and to nursing experts for their evaluation regarding clarity and relevance (p. 214).

Kramer (1966) used the "known group method" to validate Corwin's role conception scale. With this method, the instrument to be validated is administered to people with known characteristics, and the direction of differences predicted (Kerlinger, 1973, p. 457). Kramer administered the role conception scale to nursing administrators, college nursing professors, and nurses with religious committments. She found significant differences in the role concepts of each group in the predicted direction. Nursing administrators held bureaucratic role concepts, college faculty held professional role concepts, and religious nurses held service role concepts.

The purpose of a summated rating scale is to place respondents on a continuum of the attribute being measured (Kerlinger, 1973, p. 496). The inclusion of several categories of responses such as in the Likert scale, increases response variance, and allows for a measure of attribute intensity. However, the increased number of response choices may cause response-set, thereby increasing measurement error and reducing reliability and validity (Guilford, 1954, pp. 451-456).

For this study Corwin's 22 hypothetical situations were used. Each item was composed of two parts; Part A measured the ideal role concept and Part B measured the actual role concept. Items 26 to 31 measured the bureaucratic role component, items 32 to 39 the professional role component, and items 40 to 47 measured the service role component.

Because of the length of Corwin's questionnaire, and the possibility of measurement error due to respondent fatigue and response-set, it was decided to change the five point Likert scale to a dichotomous "yes-no" scale. Summated scores were calculated for each role concept on the "yes" responses to the items measuring bureaucratic, professional, and service ideals and values. The range of scores possible for the bureaucratic role was 0-6, and for the professional and service roles, 0-8.

Technology

Three dimensions of nursing unit technology; variability, uncertainty, and instability were measured using the Overton et al. (1977) Technology Instrument. Three items for each of the above technological variables were randomly selected from items with high factor loadings (p. 209). Thus, nine items provided a measure of the variability, uncertainty, and instability of nursing units.

Items 19, 24, and 25 provided a measure of variability. Items 20, 22, and 23 measured uncertainty and items 15, 18, and 21, instability. Items were measured on a five point scale of percentages ranging from 0-5%, 6-25%, 26-50%, 51-75% to 76-100%.

> Although the 5 point response scale was not equidistant in terms of actual percentages, the points were considered conceptually equidistant and for analysis purposes, were given numerical values ranging from 1 to 5.... The 0-5% category was an attempt to provide an

> opportunity for the nurses to respond in terms of extreme, rare or occasional situations, which was desirable from the theoretical viewpoint. (Overton, 1975, p. 58)

Reliability and validity were discussed by Overton et al. (1977). In a working paper, Leatt and Schneck (1980) demonstrated construct validity using computational scores and factor analytic procedures.

Instrumentation

Sixteen items purported to measure instrumentation were specifically constructed for this study. On the basis of the relevant literature and this author's clinical experience, these items were constructed to provide a comprehensive measure of 1) the type; 2) the function; and 3) the effect of equipment used on nursing units.

Items 7, 8, 10, 12, and 14 were intended to measure the type of equipment; i.e., how simple or complex the equipment is, what safety features exist, and the extent of training required to safely operate such equipment. Items 1 and 2 related to the function of the equipment; life support or monitoring. Items 3 to 6, 9, 11, 13, 16, and 17 referred to the use of equipment in performing nursing tasks; i.e., time spent responding to equipment alarms, calibrating or assembling equipment, delays in patient care due to equipment failure, and time spent assisting others in performing patient care tasks using complicated or sophisticated equipment.

Almost all questions used a four point response scale. (See Appendix A for details.) Responses were given numerical values ranging from 1 (lowest) to 4 (highest). Three questions used a five point percentage scale identical to that used by Overton et al. with a range of values from 1 to 5; two questions were measured on a dichotomous yes-no scale.

Data Collection

Prior to distributing the questionnaires, the nursing administrator was interviewed and the nature of the study explained. The questionnaires were distributed to the population of nurses on each of the four nursing units. A total of 89 questionnaires were distributed with a response rate of 97.8%.

Since the population of nurses in the four nursing units participated in the study, it was not necessary to make inferences about the representativeness of this group. Although the results described are not generalizable to any other group of nurses, the parameters of this population of nurses have been established.

Data Analysis

The arithmetic sum of "yes" responses to the ideal role component comprised the measure of individual nurse's bureaucratic, professional, and service role conceptions. "Actual" role scores were calculated in the same way, using "yes" responses to the actual role questions. All further analyses of roles were based on these scores.

Scores for variability, uncertainty, and instability were calculated using composite scores of nurses' responses to the items intended to measure each variable. Data analysis was based on composite scores rather than responses to individual questions.

Factor analysis was employed to examine the concept of instrumentation in order to identify and describe the factors underlying this variable (Kerlinger, 1973, p. 685). An orthogonal, varimax rotation was used to obtain a simple structure with three independent (uncorrelated) factors. Factor scores were calculated for each nurse on the basis of the identified factors.

Pearson's product-moment coefficients were used to examine the extent and direction of relationships between nurses' role conceptions and perceptions of technology and instrumentation.

Examination of the Reliability and Validity of the Measure of Instrumentation

Reliability refers to the internal consistency of an instrument and the degree of accuracy or precision with which the instrument measures an attribute (Kerlinger, 1973, pp. 442-455). Reliability can be established by measuring the stability of the items over time, the internal consistency of items within an instrument and/or equivalence between parallel forms of the instrument. The validity of an instrument refers to the extent to which it measures what it was designed to measure (p. 457).

Four types of validity commonly described are face, content, criterion-referenced, and construct validity. Face validity refers to the meaningfulness of items to the respondents, whether or not the instrument *appears* to measure what is intended, and is reasonable and relevant. Content validity is the degree to which the content of a measuring instrument is representative of the universe of topics (Kerlinger, p. 458). Criterion-referenced validity is established by studying the relationship between the test scores and independent external criteria known to measure the attribute under study (p. 459). Construct validity is measured by determining the degree to which the hypothesized variables (constructs based on theoretical knowledge) can explain the variance in respondent scores. Construct validity seeks to validate both the measuring instrument and the theory behind the test (Cronbach & Meehl, 1955, p. 282).

Face validity of the instrumentation questionnaire was sought by submitting all items to external validators. The 14 validators were asked to evaluate the items for clarity, relevance, understanding and completeness. Based on their recommendations modifications were made to wording and content. Content validity was not established as the universe of items measuring nursing instrumentation was not known. Since there was no other available measure of instrumentation, criterion-referenced validity could not be measured. The measure of instrumentation was not based on theoretical constructs and therefore it was not possible to test construct validity.

In the beginning stages of instrument development face validity is often all that can be established. Although this is the weakest form of validity, it is a necessary form, for unless the instrument appears to measure what it is designed for, further validation cannot be done.

CHAPTER IV

PRESENTATION AND DISCUSSION OF RESULTS

The findings from this investigation are presented in relation to the 1) demographic characteristics of the population; 2) role conception scores; 3) factor analysis procedure applied to the instrumentation variable; 4) technology and instrumentation scores; and 5) relationships among role conceptions, technological, and instrumentation variables. The results of the study are discussed in terms of role and organizational theory and previous empirical studies within the nursing context.

Description of Population

Of the 87 nurses responding to the questionnaire, 16 (18.8%) worked on the medical unit, (MED), 32 (37.6%) on the intensive care unit, (ICU), 14 (16.5%) on the renal unit, (RENAL), and 25 (29.4%) on the psychiatric unit, (PSYCH). There were 11 registered psychiatric nurses. Seventy five nurses were educated at the diploma level and 10 at the baccalaureate level (three of these held post basic baccalaureate degrees). Two cases were missing. The greatest proportion of nurses on each unit had been there for one to three years, and were between 20 and 29 years of age. Most nurses had had from one to six years experience; there were no nurses with less than one year's experience in either the intensive care or renal unit. Table 1 summarizes the demographic characteristics.

TABLE 1

Selected Demographic Data for Population

UNIT	EDUCATION		LENGTH OF TIME ON NURSING UNIT					AGE				EXPERIENCE				
	RN	BN	0-6mos	6 mos-1yr	1-3yr	3-6yr	6-9yr	20-29yr	30-39yr	40-49yr	50 & over	< 1yr	1-3yr	3-6yr	6-9yr	over 9yr
MED^b	12	2	3	4	5	2	0	11	2	1	0	6	3	2	2	1
	85.7%	14.3%	21.4%	28.6%	35.7%	14.3%		78.6%	14.3%	7.1%		42.9%	21.4%	14.3%	14.3%	7.1%
ICU	29	3	8	10	13	1	0	29	3	0	0	0	11	15	5	1
	90.6%	9.4%	25.0%	31.3%	40.6%	3.1%		90.6%	9.4%				34.4%	46.9%	15.6%	3.1%
RENAL	13	1	0	2	8	4	0	12	2	0	0	0	1	8	3	2
	92.9%	7.1%		14.3%	57.1%	28.6%		85.7%	14.3%				7.1%	57.1%	21.4%	14.3%
PSYCH	21	4	2	7	9	6	1	9	11	3	2	1	6	5	6	7
	84.0%	16.0%	8.0%	28.0%	36.0%	24.0%	4.0%	36.0%	44.0%	12.0%	8.0%	4.0%	24.0%	20.0%	24.0%	28.0%
	R.N. PSYCH N=11 44.0%															
TOTAL	75	10	13	23	35	13	1	61	18	4	2	7	21	30	16	11
N=87	86.2%	11.8%	15.3%	27.1%	41.2%	15.3%	1.2%	71.8%	21.2%	4.7%	2.4%	8.2%	24.7%	35.3%	18.8%	12.9%

[b] Missing Cases = 2

Role Conceptions

Individuals define roles in relation to their conceptualization about those roles, this is influenced by the value and belief system of the individual. The *ideal* role conception scores measure the value and loyalty nurses place on given role expectations and behaviors. The *actual* role conception scores measure the extent to which nurses believe behaviors associated with a role exist; they do not measure whether or not those role behaviors actually do exist. The focus of this investigation was the values and beliefs nurses place on the bureaucratic, professional and service role, not beliefs about behavior associated with these roles. Data analysis refers mainly to the *ideal* scores as a measure of role conception, unless otherwise stated.

Although it was not the major purpose in this research to examine role discrepancies and role conflict, an examination of Table 2 shows a wide disparity between what nurses believed to be the ideal role, and what they perceived to actually exist for the professional and service role. This same disparity did not exist in terms of the bureaucratic role. Nurses generally disagreed with the value system of the bureaucratic model, and did not believe that their nursing practice was directed in such a way. Interestingly, nurses who subscribed to both (or either) the professional or service model did not feel nursing practice followed those principles. In accordance with Corwin (1960) these findings suggested there is a considerable source of role conflict; that is, a large difference between ideal and actual role scores. Nurses exhibited little role discrepancy for the bureaucratic role, and substantially more for both the service and professional role. In terms of actual nursing practice, nurses in this population did not have a high score on any of the roles, although the bureaucratic concept was slightly higher since the maximum score was 6.0, whereas for the professional and service role, it was 8.0.

Nurses in this population had a much lower ideal bureaucratic role conception than ideal professional or service role conception, both of which were highly rated (Table 2). There was no difference in the mean scores for professional and service roles although nurses were more inconsistent in their beliefs about the service role. This was illustrated by the larger variance amongst the nurses' service role score (SD=1.29) as compared to professional role (SD=1.13).

Generally, this population of nurses exhibited loyalty to the patient in terms of "holistic" patient care based on knowledge, skills, and autonomy inherent in a professional role. Disagreement with the bureaucratic role was consistent among nurses suggesting that, as a group, these nurses did not subscribe to administrative or hierarchial lines of authority and did not value a task-oriented nursing structure.

In contrast to previous findings by Corwin (1960) and Kramer (1966), diploma nurses in this study did not have a higher bureaucratic role conception than baccalaureate nurses, although they showed less variance among themselves than did the baccalaureate nurses (Table 3). Baccalaureate nurses more consistently held higher professional and service roles, a finding in contrast to that of Corwin and Taves (1962), who found baccalaureate graduates less certain in their role than diploma graduates. Baccalaureate graduates held high service roles, consistent with the image of nursing taught in university schools; that

TABLE 2

Mean Role Conception Scores for Population (N=87)

Role Conception	Mean	SD	Range	N
Bureaucratic Ideal[1]	2.33	1.03	0/5.0	84
Bureaucratic Actual	2.93	1.25	0/6.0	82
Professional Ideal[2]	5.55	1.13	2.0/7.0	86
Professional Actual	2.82	1.26	0/6.0	81
Service Ideal[2]	5.59	1.29	2.0/8.0	83
Service Actual	2.69	1.42	0/6.0	84

Note: A high mean indicates a high role conception

[1] Maximum score = 6.0

[2] Maximum score = 8.0

TABLE 3

Mean Role Conception Scores for Diploma
and Baccalaureate Nurses

Role Conception	Basic Education					
	RN Diploma			Baccalaureate		
	Mean	*SD*	*N*	Mean	*SD*	*N*
Bureaucratic	2.28	0.97	71	3.17	1.17	6
Professional	5.47	1.14	73	5.57	0.97	7
Service	5.61	1.31	70	6.43	0.79	7

of individualized patient care. What is more difficult to explain in relation to previous research studies was the higher bureaucratic role held by baccalaureate nurses. However, the small number of basic baccalaureate nurses (N=7) does not permit accurate comparison to previous studies, thus for this population baccalaureate nurses had a higher bureaucratic role concept. The mean scores and standard deviation scores were compared between nurses for each role concept in relation to age and nursing experience. Nursing experience and age were not related to either the bureaucratic or professional role concept (Table 4). In terms of the service role, the mean scores increased and variance decreased as age and years of nursing experience increased. This suggested that the more experienced, older nurses believed in "holistic patient care" more so than the younger nurses. Often in nursing, promotions are based on experience, and these results suggested that a valuable source of patient-oriented nursing personnel may be removed from the bedside if the older experienced nurses are promoted.

In examining the role conceptions held by nurses working in different types of nursing units it may be noted that the high professional, high service, and low bureaucratic orientation persisted (Table 5). The bureaucratic orientation was highest with the intensive care unit nurses, not surprising given the critical condition of patients in the intensive care unit. The importance of reducing the margin for error necessitates the use of routine standards and procedures thus fostering a bureaucratic role conception in nurses working in this area. The professional and service roles were rated highly by nurses on all

TABLE 4

Mean Role Conception Scores for Nurses by Experience and Age

Role Conceptions	YEARS OF NURSING EXPERIENCE										AGE							
	less than 1yr N = 7		1-3yr N = 21		3-6yr N = 30		6-9yr N = 16		more than 9yr N = 11		20-29yr N = 61		30-39yr N = 17		40-49yr N = 4		50yr or more N = 2	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Bureaucratic	2.28	0.95	2.50^a	1.23	2.29^b	0.94	2.25	1.18	2.18	0.87	2.44^b	1.07	1.82	0.81	2.50	1.29	2.50	0.71
Professional	5.00	1.15	5.95	1.02	5.53	1.07	5.53^b	0.99	4.90	1.38	5.69	1.04	4.88	1.27	5.25	0.96	6.00	1.41
Service	4.57	1.72	5.55	1.32	5.72^a	1.62	6.13^a	1.19	6.20^a	1.03	5.59^b	1.32	5.94	1.20	6.25	1.26	7.00^a	0

Note: A high mean indicates a high role conception score

[a] Missing cases = 1

[b] Missing cases = 2

TABLE 5

Mean Role Conception Scores for Nursing Units

Role Conception	UNIT							
	MED N=16		ICU N=32		RENAL N=14		PSYCH N=25	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Bureaucratic	2.19	0.83	2.60[b]	1.04	2.14	0.77	2.17[a]	1.24
Professional	5.56	1.21	5.59	1.01	5.71	1.44	5.38[a]	1.09
Service	5.06	1.39	5.57[b]	1.01	5.71	1.33	6.26[b]	1.36

Note: A high mean indicates a high role conception score

[a] Missing cases = 1

[b] Missing cases = 2

units, psychiatric nurses ascribing the highest value to the service role, in keeping with the emphasis on the psychosocial emotional needs of the patient. The chronic, long term nature of patient care on the renal unit is consistent with both professional and service role ideals. The demand for a strong knowledge base and technical skills in both the intensive care unit and the renal unit may explain the high professional role score. Nurses in the intensive care unit are generally a cohesive group, and showed little variance for any of the three role types. The nurses in the other units were less consistent in their agreement or disagreement of role concepts.

Factor Analysis of Instrumentation

All responses for the 16 items measuring instrumentation on the questionnaire (Appendix A) were initially analyzed for an orthogonal principal axis factor solution. Five factors were obtained with eigenvalues greater than 1.00, explaining 71.0% of the variance in nurses' responses.

Factor analysis was repeated using a varimax rotation and reducing the number of factors to three. One item (10) was eliminated because it did not load highly on any factor and had a low communality value (0.19). Table 6 shows the three factor solutions on the remaining 15 items using a three factor orthogonal factor solution with varimax rotation. The three factors together accounted for 59.6% of the total variance in nurses' response; of this 38.8% was accounted for by Factor I, 12.4% by Factor II, and 8.4% by Factor III.

Each factor will be discussed separately and a listing of items loading .50 or greater will be given.

TABLE 6

Factor Analysis Orthogonal Solution Varimax Rotation

Item Number	Item Content	Commun-alities	Critical Care Equipment	Diagnostic Equipment	Equipment Apprehension
01	Use of monitoring equipment	0.765	0.578	0.584	0.015
02	Use of life support equipment	0.890	0.921	0.203	-0.004
03	Nurse frequently operates equipment	0.836	0.874	0.178	-0.201
04	Nurse repairs equipment	0.345	0.573	0.122	-0.030
06	Equipment alarms	0.781	0.817	0.326	0.086
07	Equipment noisy	0.601	0.762	0.047	0.134
11	Assembling equipment	0.492	0.604	-0.041	0.354
12	Equipment in bedside area	0.667	0.804	0.112	0.085
14	Extensive training required	0.499	0.664	-0.140	0.197
13	Assist others who use equipment	0.608	0.324	0.650	0.285
17	Work load decreased	0.734	0.053	-0.835	0.185
05	Patient care delayed	0.465	0.126	0.148	0.572
08	Frustration with equipment	0.461	0.373	0.208	0.527
09	Apprehension re: operating equipment	0.487	-0.240	-0.097	0.648
16	Time with patient decreased	0.496	-0.061	0.357	-0.604
		8.936	5.818	1.858	1.260

Note: The items have been re-ordered from the original (Appendix A) for ease of viewing loadings of .50 and greater on each factor.

[a] Loadings of .50 and greater are underlined.

Factor I

Factor I was interpreted as indicating the direct use and/or operation of monitoring or life support equipment by nurses in performing nursing care activities. Many patients required the use of monitoring or life support equipment and nurses were frequently responsible for operating, assembling, or repairing such equipment (items 1, 2, 3, 4, 11). The complexity of the standard equipment was related to the nurses expressed need for extensive training (item 14). The predominance of technical equipment in the nursing unit was suggested by the fact that a large proportion of the patients' bedside area was taken up by equipment (item 12). As well, nurses indicated they often found the unit noisy (item 7) and frequently had to respond to equipment alarms (item 6). This factor measured the type and function of equipment and was labelled "critical care equipment".

Items with loadings of .50 or greater were as follows:

Item

1. How many of the patients on your unit require sophisticated monitoring equipment, (e.g. cardiac monitor, IVAC IV regulator) at some time during their stay on your unit?
2. How many of the patients on your unit require life support equipment (e.g. ventilators, dialysis machine) at some time during their stay on your unit?
3. How often are you responsible for operating monitoring or life support equipment needed for patient care?
4. On your unit, how often do you repair or "trouble shoot" equipment that is not working properly and is needed for patient care?

6. How frequently during a shift is it necessary for you to respond to equipment alarms, including false alarms?
7. How frequently do you find the technical equipment used on your nursing unit noisy?
11. Approximately what percentage of nursing time per day do you spend assembling or calibrating equipment before starting direct patient care activities?
12. Approximately what percentage of the patient's bedside area is taken up by technical equipment?
14. How much training do nurses on your unit need before using any of the standard technical equipment without supervision?

Factor II

This factor related to the frequent but not continuous use of monitoring equipment (item 1). Nurses were frequently required to assist other health professionals using equipment in relation to patient care activities (item 13). This indirect involvement with equipment, in terms of assisting with procedures rather than operating the equipment, was perceived to increase nursing workloads. It is most likely that the monitoring equipment used was for diagnostic or investigational procedures, and therefore required much nursing time related to task oriented work. This factor was labelled "diagnostic equipment".

Items with loadings of .50 or greater were as follows:

Item

1. How many of the patients on your unit require sophisticated monitoring equipment (e.g., cardiac monitor, IVAC IV regulator) at some time during their stay on your unit?

13. Approximately what percentage of your shift is spent assisting physicians or other health professionals with procedures in which technical equipment is used on your unit?
17. In general, does the equipment used on your unit decrease your workload?

Factor III

The effect of equipment on the work environment and nurses' perceptions of such were inherent in factor III.

Nurses felt the use of equipment allowed them to spend more time giving direct patient care (item 16). However, they were apprehensive about being responsible for the operation of equipment (item 9), and often found such equipment to be frustrating (item 8). As well, patient care was often delayed because needed equipment was not available (item 5). The number of patients using monitoring or life support equipment was very low (items 1, 2), suggesting that the infrequent use of equipment forces nurses to spend more time at the bedside with unfamiliar equipment, thereby causing apprehension and frustration. This factor was labelled "equipment apprehension".

Items with loadings of .50 or greater were as follows:

Item

5. How often is patient care on your unit delayed because needed technical equipment (not including procedure trays) is not available?
8. To what extent do you find the technical equipment used on your unit to be frustrating?

9. To what extent do you feel apprehensive about being responsible for the operation of technical equipment on your unit?
16. In general, does the equipment used on your unit allow you to spend time giving direct patient care?

Technology Variables

Three dimensions of nursing technology were measured: variability, uncertainty, and instability. Variability was related to the degree to which patients present different health problems and individualized patient care was planned. The uncertainty variable refers to the degree to which patients were not understood owing to complex health problems. Nursing activities involved intuitive judgement and independent decision making. Instability was defined in terms of the number of emergencies and physiological fluctuations in patients' conditions, and the frequency of nursing observations. These dimensions distinguish between different types of patients, nursing techniques, and task interdependence on nursing units (Overton et al., 1977).

Overall, instability emerged as the largest aspect in nursing technology, followed by uncertainty and variability (Table 7). For all three factors there was a large variance indicating wide variation among the nurses making up the total population. This was consistent with previous findings by Leatt and Schneck (1980).

Differences in mean technology scores are given in Table 8. For the instability factor the nurses scores in the intensive care unit were higher than those in the other three units. Psychiatric nurses were second highest and the medical and renal nurses, with little difference between them, third. Leatt and Schneck (1980) found that

TABLE 7

Mean Technology Scores for Population (N = 87)

Technology Variable	Mean	SD	Range
Variability	7.46	2.57	3.0/12.0
Uncertainty	8.61	2.59	4.0/15.0
Instability	8.85	2.16	5.0/14.0

TABLE 8

Mean Technology Scores of Nursing Units

Technology Variables	Unit							
	MED		ICU		RENAL		PSYCH	
	N=16		N=32		N=14		N=25	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Variability	9.13	1.67	7.34	2.18	4.21	1.42	8.36	2.41
Uncertainty	7.50	2.16	7.25	1.78	8.00	2.00	11.40	1.66
Instability	7.88	1.40	10.06[a]	2.34	7.86	2.03	8.50[a]	1.69

[a] Missing cases = 1

psychiatry scored low on instability with medicine somewhere in the middle. The reverse order of nurses on medicine and psychiatry in this study was difficult to explain, but the differences between psychiatry and medicine were very small. It was expected that the nurses on the intensive care unit would have a high instability score related to the unstable physiological condition of patients, the frequent nursing observations needed, the number of emergencies, and the pressure to give care quickly. Medicine and renal units have a large number of stable chronic patients, who may require tests and investigations. There are usually few emergencies which require immediate nursing actions, and therefore it was not surprising that the nurses from these two units scored low on instability.

Nurses in psychiatric units may be under pressure to give care quickly if emergencies should occur, because of the unpredictable changes in patient conditions and difficulty in learning the speciality. For this reason psychiatric nurses scored higher than the medical or renal nurses on instability.

Uncertainty appeared highest for nurses in the psychiatric units, consistent with Overton et al. (1977) and Leatt and Schneck (1980). This dimension of technology related to the psychosocial aspect of patient care, of prime importance in psychiatry. There was often insufficient knowledge about the patients' condition or the probability of success in giving care. Nursing intuition and independent nursing practice are inherent in this factor; both skills utilized in psychiatric nursing. The renal nurses were the next highest, although their scores were only slightly different from the scores of either medicine or intensive care. The relatively low uncertainty score of nurses in these three units suggested that even though patient conditions may be complex, they are well understood and nursing techniques are known to be successful.

Variability was regarded highest by medical and psychiatric nurses, consistent with both Overton et al. (1977) and Leatt and Schneck (1980). This factor accounted for the degree of variation among patient conditions and consequently nursing tasks. An important component of variability is individualized patient care planned with the patient. Both medical and psychiatric nurses care for patients with a variety of conditions, especially when, as in this case, the units are part of a teaching hospital. Patients admitted to the intensive care unit had one prevailing condition - multi-system failure, and were not usually able to participate in planning their care. The renal unit had very low variability, not surprising since all patients had the same diagnosis - end stage renal disease, and received essentially the same treatment - hemodialysis.

Where the relationship between experience and technological variables was examined by comparing mean scores and standard deviations, no trend was evident (Table 9). In looking at the length of time nurses were employed on one unit, only instability changed. Instability mean scores and variance decreased the longer the nurse was employed on a particular unit. This suggested that familiarity and experience in one unit allowed nurses to develop confidence in dealing with the unstable conditions of their patients, and consequently they perceived nursing technology to be less unstable.

TABLE 9

Mean Technology Scores for Nursing Experience and Length of Time on Nursing Unit

TECHNOLOGY VARIABLES	YEARS OF NURSING EXPERIENCE										LENGTH OF TIME ON NURSING UNIT									
	<1yr		1-3yr		3-6yr		6-9yr		more than 9yr		0-6 mos		6 mos-1yr		1-3yr		3-6yr		6-9yr	
	N= 7		N = 21		N = 30		N = 16		N = 11		N = 13		N = 23		N = 35		N = 13		N = 1	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Variability	9.43	1.99	7.33	2.39	6.80	2.44	8.13	2.50	7.18	3.25	8.77	2.04	7.26	2.40	7.03	2.37	7.23	3.23	12.0	-
Uncertainty	7.71	2.29	9.05	2.40	7.83	2.04	8.94	3.53	9.45	2.50	7.54	2.50	9.13	2.60	8.26	2.19	8.77	2.89	15.0	-
Instability	8.29	1.25	9.90[a]	2.47	9.17	1.84	7.00[a]	1.93	8.91	1.87	9.92	2.56	9.55[a]	2.18	8.53[a]	1.71	7.23	1.96	11.0	-

[a] Missing cases = 1

Instrumentation Variables

Factor analysis of the instrumentation variable produced three independent measures of equipment technology. Factor scores of nurses were calculated for each of the three factors. Factor I, "critical care equipment" was related to the number of patients requiring monitoring and/or life support equipment, and the predominance of this equipment in the nursing unit. Factor II, "diagnostic equipment" was suggestive of equipment used by others, perhaps in diagnostic tests, in which nursing assistance was required. This was perceived to increase nursing work loads. "Equipment apprehension", factor III, referred to the degree of apprehension nurses experienced working with unfamiliar equipment. Patient care was frequently delayed due to equipment failure, thus increasing nurses' frustration.

Differences between nurses working in the different types of units in relation to the three instrumentation factors are seen from an examination of Table 10. The nurses from the renal unit showed the highest score for critical care equipment. This result was expected since all patients are treated by life support hemodialysis machines. Nurses on the renal unit are usually responsible for the operation of this equipment, and to some extent its maintenance. Hemodialysis therapy is relatively complicated and nurses require extensive training before working without supervision. As well, there is a large amount of equipment around patients in the renal unit, all utilizing alarm systems which contributes to the noise level. As could be expected, the nurses in the intensive care unit were the next highest. Although

TABLE 10

Mean Instrumentation Factor Scores for Nursing Units

Instrumentation Variables	Nursing Unit			
	MED N=16	ICU N=31	RENAL N=14	PSYCH N=19
Critical Care Equipment	-0.62	0.52	1.25	-1.24
Diagnostic Equipment	-0.02	0.65	-0.75	0.48
Equipment Apprehension	0.32	-0.11	0.14	-0.20

many patients require the use of monitoring and/or life support equipment, it is probable that nurses are less frequently involved in the assemblement, operation, or repair of such. Many ICU's have technical staff whose responsibility is equipment management. With centralized monitoring systems and more compact equipment, it is possible that very little bedside area is taken up with equipment. Nurses from both medicine and psychiatry scored very low on this factor, not an unusual result given that very few patients on these types of wards require such intensive and prolonged mechanical support.

The factor related to "diagnostic equipment" was highly rated by the nurses in the intensive care unit. The critical condition of multi-system failure patients requires that many diagnostic tests be performed and the need for experimentation with different treatment techniques. It would seem that these tests and procedures require nursing assistance, thereby increasing nurses' perception of their work load. The nurses from the psychiatric unit scored highest on this factor, suggesting that nurses in this area may often be involved in assisting with equipment related procedures such as electroconvulsive therapy. Such involvement is seen to increase nursing work loads. It is understandable that medical nurses rated "diagnostic equipment" low since very few patients undergo extensive tests on this type of unit, and consequently nursing involvement with equipment is minimal. The renal nurses probably scored low on "diagnostic equipment" because patients in that unit very seldom use equipment other than the hemodialysis machine. The renal patients are stable long term patients who seldom require any diagnostic or experimental tests while on dialysis.

Factor III referred to "equipment apprehension" and as would be expected, medical nurses were highest. Since this group seldom uses equipment it was not surprising to find a high level of apprehension and frustration. The renal nurses had a moderately high score in relation to nurses in the other units. This was probably attributable to the fact that equipment failure delays patient care because treatment techniques and nursing tasks are machine dependent. Psychiatric and intensive care nurses were both low on "equipment apprehension"; psychiatry because equipment is seldom used, and intensive care because equipment failure is not likely to be a common occurrence.

Generally speaking, no trend emerged when years of experience or length of time on the unit were considered in relation to instrumentation (Table 11). "Equipment apprehension" scores decreased with the length of time on the unit, suggesting the more experience nurses had with equipment, however infrequent, the less apprehensive they felt. This same trend regarding length of time spent on a unit was previously noted for "instability".

Overall, the nurses' scores for each dimension of instrumentation; "critical care equipment", "diagnostic equipment", and "equipment apprehension" seem logically related to each type of unit when the characteristics of the patients, and the nature of nursing tasks and responsibilities were taken into consideration.

Relationships Among Variables

The relationships amongst the variables were examined using the Pearson product-moment correlation coefficient. This statistic uses

TABLE 11

Mean Instrumentation Factor Scores for Nursing Experience and Length of Time on Nursing Unit

INSTRUMENTATION VARIABLE	YEARS OF NURSING EXPERIENCE					LENGTH OF TIME ON NURSING UNIT				
	<1yr N=7	1-3yr N=18	3-6yr N=29	6-9yr N=15	>9yr N=9	0-6mos N=13	6 mos-1yr N=21	1-3yr N=32	3-6yr N=11	6-9yr N=1
Critical care Equipment	-0.80	0.14	0.37	-0.16	-0.33	-0.25	-0.08	0.25	-0.01	-0.46
Diagnostic Equipment	-0.06	0.18	0.06	-0.07	-0.40	0.38	0.30	-0.18	-0.42	-1.08
Equipment Apprehension	0.04	-0.20	-0.02	-0.18	0.18	-0.40	0.39	-0.05	-0.37	-2.38

Note: No nurses with less than 1 year experience are employed in either the renal or intensive care units.

interval level data, which was provided by summated scores for the Corwin Role Conception Scale, the Overton et al. Technology Scale, and the 3 factor scores for instrumentation. Pearson's r is a measure of the linear relationship between two variables and can be used to describe the magnitude and direction of the relationship between variables (Glass and Stanley, 1970, pp. 109-127). If the correlation coefficient is squared, this provides a measure of the amount of variance that the factors share in common.

The magnitude and nature of the relationships between different aspects of nurses' roles, technology, and instrumentation, were measured using the Pearson product-moment correlation coefficient. It should be kept in mind that Pearson's r measures only linear relationships, and a low correlation coefficient does not necessarily mean there is no relationship between variables.

The correlation coefficients between all variables are listed in Table 12. There did not appear to be any relationship between the three role concepts, (bureaucratic, professional, and service) as indicated by the low coefficients in Table 12. The bureaucratic role correlated positively with the professional role ($r=0.16$) and negatively with the service role ($r=-0.02$). The service and professional roles were correlated positively ($r=0.06$). This finding supported the contention that each of these scales measures a distinct role concept (Corwin, 1960; Kramer, 1966). It must be remembered that there may be a relationship other than a linear one between role concepts. One of the characteristics of a profession is a service ideal (Goode, 1969), and thus it is possible there is some relationship between the service and professional role, although it did not appear in this study.

TABLE 12

Pearson Correlation Coefficient Relationships Among Measures of Technology, Instrumentation, and Role Conceptions

	Bureaucratic Role	Professional Role	Service Role	Variability	Uncertainty	Instability
Bureaucratic Role						
Professional Role	0.16					
Service Role	–0.02	0.06				
Variability	–0.11	–0.03	–0.08			
Uncertainty	0.03	0.04	0.25	0.07		
Instability	0.21	0.15	–0.04	0	0.08	
Critical care Equipment	0.12	0.19	–0.07	–0.54	–0.44	0.16
Diagnostic Equipment	0.31	0.10	0.07	0.21	–0.19	0.39
Equipment Apprehension	–0.07	0.15	–0.15	–0.04	–0.03	0.10

Note: If it is assumed that these nurses were randomly sampled from a larger population a Pearson correlation coefficient of 0.25 or greater would be significant at 0.05 level.

There was a positive correlation (r=0.25) between the service role concept and uncertainty variable. The service role emphasizes the individual patient, and nursing care directed toward the psychosocial emotional comfort of the patient. The uncertainty factor measured the degree to which nursing care relied on intuitive judgements and patient feedback in meeting the psychosocial needs of the patient. The common factor between the service role and uncertainty is likely to be related to a belief in individualized patient centred care, and nursing tasks directed toward this goal.

The bureaucratic role conception was related to one dimension on the instrumentation variable; that of "diagnostic equipment" (r=0.31). This relationship involves other health professionals (probably physicians) who require nurses to assist with the operation of diagnostic equipment for medical investigations. Nursing care becomes task oriented and efficiency is of prime importance, both highly valued in a bureaucratic role conception.

"Diagnostic equipment" and instability were also related (r=0.39). Because of unpredictable changes in patients' physiological conditions there is a need to monitor patients and probably conduct many diagnostic tests, thus increasing nurses' work load. Task interdependence of the instability factor is related to physician input, and this is consistent with the "diagnostic" variable in that nurses are frequently involved in assisting other health professionals.

Critical care equipment, factor I, was negatively associated with both variability (-0.54) and uncertainty (-0.44). This result implied that the more involved nurses are with the operation of monitoring and/or life support equipment, and the greater the technical training and skills required, the less uncertainty and variability exist in types of patients and nursing tasks. The extensive use of complex equipment reduces the uncertainty of success in providing patient care and lessens the amount of patient input sought in care planning. As uncertainty decreases nursing functions rely less on intuition and independent decision making, and becomes more dependent on the equipment.

Critical care equipment correlated -0.54 with variability suggesting that in nursing units where care was given in conjunction with complex life support equipment, all patients had similar health problems and required the same type of nursing care. Patient care coordination, as related to low variability, is not seen as a major nursing function and therefore, there is little emphasis placed on individual patient care plans in units with a high score on critical care equipment. Patient or family involvement was not deemed to be as important as equipment management.

An inspection of the correlation coefficients (Table 12) suggested that for this population of nurses, there were only weak relationships between role conceptions and the technology or instrumentation variables. This is merely to say there is no strong evidence to support the hypothesis that there is a direct link between nurses' role conceptualizations and their perceptions of nursing technology as measured in this study. Although the correlation coefficients were not high the mean scores were in the predicted direction, and the results of this investigation suggested that the nurses' scores on technology and instrumentation variables in different speciality units were consistent with the theoretical characteristics of given role concepts.

Discussion of Results

As outlined in Chapter I, certain expectations were held at the outset of the study concerning the relationships between technology and role. For example, it was anticipated that nurses with a professional role concept would score high on instrumentation, uncertainty, and instability, and low on variability. The results showed that nurses with a professional role conception did score low on variability, but moderately high on uncertainty and both high (ICU) and low (RENAL) on instability. The instrumentation scores for nurses with a professional role conception were both high (ICU) and low (RENAL) on diagnostic equipment, moderately high on equipment apprehension, and high on critical care equipment.

It was also expected that nurses with a bureaucratic role conception would score high on variability and low on instrumentation, uncertainty, and instability. The results indicated that nurses with a bureaucratic role concept scored high on diagnostic equipment and moderately high on the critical care equipment factors of instrumentation. These nurses scored low on equipment apprehension and uncertainty. The mean scores on instability were high and on variability moderately high.

Thirdly, it was anticipated that nurses with a service role conception would score low on instrumentation and instability and high on uncertainty and variability. The results indicated that nurses with a service role conception had low mean factor scores on critical care equipment and equipment apprehension, and moderately high scores on diagnostic equipment. In terms of nursing technology, these nurses had high mean scores on uncertainty and moderately high scores on variability and instability. There were no separate distinctions between the instrumentation and technology variables for nurses working on different types of units.

Professional and bureaucratic role conceptions were independent of age. Service role conceptualization increased with age. There was no relationship between years of nursing experience and bureaucratic role conception scores. It was expected that level of education would be related to role conceptions, and that baccalaureate degree nurses would have a high professional·role conception and diploma nurses a high bureaucratic role conception. Level of education was expected to be independent of service role conception. The results suggested that baccalaureate degree nurses have a higher professional, bureaucratic, and service role concept than diploma nurses.

Discussion of Results in Relation to Role Theory

None of the nurses in this study, regardless of the type of unit in which they worked, exhibited a strong bureaucratic role concept. However, the rank order of mean scores (Figure 2) shows that nurses in intensive care units hold the highest bureaucratic role concept. In examining the relative position of the intensive care unit nurses on the technological and instrumentation variables (Figures 3 and 4) it can be seen that the types of patients, nursing techniques, task interdependence, and equipment factors are consistent with the beliefs and values of the bureaucratic role. In terms of technology, the nurses in the intensive care unit scored high on instability and low on variability and uncertainty.

Figure 2: Rank Order of Nursing Units Mean Scores for Role Conceptions

Bureaucratic Role Conception

High	ICU	MED	PSYCH	RENAL	Low
	2.60	2.19	2.17	2.14	

Professional Role Conception

High	RENAL	ICU	MED	PSYCH	Low
	5.71	5.59	5.56	5.38	

Service Role Conception

High	PSYCH	RENAL	ICU	MED	Low
	6.26	5.71	5.57	5.06	

Figure 3: Rank Order of Nursing Units Mean Scores for Technology Variables

Variability

High	MED	PSYCH	ICU	RENAL	Low
	9.13	8.36	7.34	4.21	

Uncertainty

High	PSYCH	RENAL	MED	ICU	Low
	11.40	8.00	7.50	7.25	

Instability

High	ICU	PSYCH	MED	RENAL	Low
	10.06	8.50	7.88	7.86	

Figure 4: Rank Order of Nursing Units Mean Factor Scores for Instrumentation Variables

Factor I: Critical Care Equipment

High	RENAL	ICU	MED	PSYCH	Low
	1.25	0.52	-0.62	-1.24	

Factor II: Diagnostic Equipment

High	ICU	PSYCH	MED	RENAL	Low
	0.65	0.48	-0.02	-0.75	

Factor III: Equipment Apprehension

High	MED	RENAL	ICU	PSYCH	Low
	0.32	0.14	-0.11	-0.20	

The unpredictable nature of patients' conditions and the analyzable search behaviors (use of technical equipment and emphasis on technical skills) associated with the instability factor (Overton et al., 1977) are consistent with bureaucratic values and beliefs in terms of technical competence and a specialized division of labor. Low variability and uncertainty combined with analyzable search procedures to produce a routine technology (Perrow, 1970, p. 78); bureaucratic organizations are characterized by set routines and procedures (Corwin, 1960).

Coordination of nursing functions is done by planning, and relies on these set routines and procedures (Overton et al.). The emphasis of bureaucratic values on organizational goals, and hence administrative tasks, serves to remove the nurse from the bedside, and place her in a managerial position (Corwin, 1961). This rationale partly explained the reliance on physician input in patient care planning, and the lack of interaction with patients and/or their families, consistent with the low scores on variability and instability (Overton et al.).

Hage and Aiken (1969) reported that the more routine the organization the more centralized decision making becomes, the more likely the use of rules and procedures, and the more job specialization occurs. This type of situation is also characteristic of bureaucratic values and beliefs and, therefore, it was not surprising that the nurses from intensive care unit, rated high on instability and, therefore, with somewhat routine nursing techniques, also rated highest on bureaucratic role conceptions. Less easily explained was the low score of the nurses from the renal unit on the bureaucratic role concept in relation to the low variability score, which would seem to imply that nursing techniques are similar and work is routine.

The task oriented work patterns consistent with bureaucratic beliefs are supported by the high score on the "diagnostic equipment" factor. This factor measures the time nurses spend assisting with procedures, and the interaction they have with other professionals. The fact that nurses felt these tasks increased their work load may be associated with the overall low bureaucratic role concept score in that nurses did not care to emphasize task oriented nursing. The relatively high score on the "critical care equipment" factor was consistent with the use of technical equipment in monitoring and treating pathophysiological conditions of patients, part of the instability factor.

In looking at the professional role concept, the values and beliefs inherent in this role stress autonomy, independent decision making, a formal body of knowledge which involves both medical and technical skills, a belief in service, and formation and use of professional organizations as a reference group (Wilensky, 1964). There was very little difference between the nurses in different units on their scores for this role concept. To the extent that the renal nurses scored higher than those from the other units (Figure 2) the corresponding technological and instrumentation variables are discussed (Figures 3 and 4). Generally, however, nurses from all units had a high professional role concept.

In terms of technology, nurses with a high professional role concept (those in the renal unit) scored moderately high on the uncertainty variable and low on both variability and instability. Of prime importance in relation to professionalism is the opportunity for autonomous practice (Wilensky, 1964; Hall, 1968). Nursing practice measured by the uncertainty factor is mostly an independent function (Overton et al., 1977). Professional beliefs stress individualized patient care (Corwin, 1960; Kramer, 1972), and the uncertainty factor supported this in that search behaviors are unanalyzable and require nursing intuition and feedback from the patient in planning care (Overton et al., 1977). The use of professional colleagues for a reference group is consistent with the high level of teamwork associated with the uncertainty factor.

One would expect that the high level of medical knowledge and technical skills inherent in the belief system of professionals (Corwin, 1960) would be seen in a high instability score because this relates to the use of technical equipment and unpredictable changes in patient conditions requiring frequent nursing observations. Such was not the case in relation to nurses from the renal unit; but the intensive care nurses did score fairly high on both professional and instability variables. The renal unit nurses scored much higher than those from any other unit on the instrumentation variable related to the use of "critical care equipment". This was consistent with the value placed on medical knowledge and technical skills.

It is not intended to infer that a high professional role concept is equated with a high uncertainty score, but rather that these two variables share some common characteristics. Psychiatric nurses scored much higher on uncertainty than those from the other units (Figure 3), and had the lowest rank ordered mean professional score. As mentioned before however, as an absolute score, all units had high professional role conceptions.

The service role is characterized by a dedication to individualized patient care and the goal of providing psychosocial emotional comfort (Corwin, 1960). As could be expected this role concept was associated with the technology factors of uncertainty and variability. Both these factors involve feedback from patients and/or their families (Overton et al., 1977).

Nursing techniques used in the service role involve both care functions (Mauksch, 1966) and expressive functions (Skipper, 1965). Overton et al. (1977) found the care functions closely related to uncertainty; suggesting another link between the uncertainty variable and the service role. In as much as the psychiatric units scored low on both "equipment apprehension" and "critical care equipment" there was some suggestion that the service role was not linked to instrumentation. This was consistent with the underlying belief that service is primarily directed toward the patient, transcending highly complex technical orientations.

CHAPTER V

LIMITATIONS AND CONCLUSIONS

In this chapter the limitations of the research are described and the conclusions from the results discussed. Implications of this research for nursing practice, education, administration, and research are explored.

Limitations

The findings of this investigation are limited to the population of nurses included in the study, and are not generalizable beyond this group. Only nurses from four nursing units from one acute care teaching hospital were included, and different results may be obtained with other nurses, types of units, or in other hospitals. The nature of this study limits the results to a descriptive nature and causal inferences cannot be made.

Measurement of the technology variables was limited to nine items of the 34 items on the Overton et al. (1977). Technology Scale, three items representative of each technology factor. Although inter-item homogeneity has been demonstrated and instrument validity recently replicated (Leatt and Schneck, 1980) different results may have been obtained had a greater number of items been included. The Corwin (1960) Role Conception Scale was altered to include only dichotomous answers to each question. Summated scores were still provided but the range was decreased. Only face validity of the Instrumentation Scale was established. The three variables selected by factor analysis for instrumentation accounted for only 59.6% of the variance. The remaining variance must be attributed to measurement error.

The investigation analyzed only nurses' ideal role conception scores. Different results may be obtained if the actual role conception scores were used in data analysis.

Conclusions

The purpose of this investigation was to examine the relationships between nurses' role conceptions and nursing technology. A measure of instrumentation revealed three factors inherent in the equipment technology of nursing units. These factors were labelled as critical care equipment, diagnostic equipment, and equipment apprehension. They related to the type and purpose of equipment used, the degree of interprofessional cooperation in equipment use, and nursing staff perceptions of equipment. These factors appeared as distinct variables for nurses on the different units, and were consistent with what one would expect given the characteristics of the units in terms of types of patients and nursing tasks. For example, the nurses from the renal unit scored very high on critical care equipment, consistent with the fact that all patient care is related to the use of hemodialysis machines and nursing care is largely related to the use of this equipment. The nurses from the intensive care unit scored very high on diagnostic equipment, reflective of the high degree of interaction between nurses and other health professionals in using equipment for necessary tests or procedures. The nurses from the medical unit, with a low score on both the above instrumentation variables, scored highly on equipment apprehension, related to the unfamiliarity and anxiety associated with the infrequent use of complex equipment.

Three measures of technology were obtained using the Overton et al. (1977) Technology Scale. It was anticipated that the three dimensions of technology measured by this scale, instability, variability, and uncertainty, would differentiate between nurses from different nursing units. On the basis of rank ordered mean scores for the nurses from the different nursing units the overall ranking for variability was similar to that of Overton et al. and Leatt and Schneck (1980). The medical unit ranked highest followed by psychiatry and intensive care. The renal unit had the lowest mean score on this factor consistent with the fact that all patients have the same diagnosis. For the instability and uncertainty variables the rank order of nurses from medicine was reversed when compared to the Leatt and Schneck results. In the present investigation the nurses from the intensive care unit ranked highest on instability followed by nurses from medicine, psychiatry and renal units. For uncertainty psychiatry ranked highest, consistent with the Overton et al. study, and Leatt and Schneck study. This was followed by the nurses from renal, medical, and intensive care units. One possible explanation for the different rank order of medicine is that the particular unit included was a medical teaching unit, that may reflect a different technology than the medical units included in the previous studies.

A negative correlation between the measure of critical care equipment and the variability (-0.54) and uncertainty (-0.44) factors provided some evidence of the concurrent validity of the Overton et al.

Technology Scale. As well, a positive correlation of 0.39 between "diagnostic equipment" and instability factors also provided some evidence of the concurrent validity of this measure.

Kovner (1966) classified the intensive care unit as having a complex technology; this was supported by the findings of Overton et al. and Leatt and Schneck. The findings of this study further support this conclusion in that the nurses from the intensive care unit had a relatively high score on the "critical care equipment" factor, and the same relative score on the instability variable.

Nursing role conceptualizations were measured using the Corwin Role Technology Scale. Previously used by Corwin (1960, 1962) and Kramer (1966, 1972) to examine role conflict in relation to educational preparation, this investigation generally supported their findings that different role concepts were held relative to different educational preparation. The finding that baccalaureate nurses in this study held a higher bureaucratic role concept than diploma nurses was inconsistent with previous studies. However, Benner and Kramer (1972) found no difference in the bureaucratic role concept of special care and general hospital unit nurses. It could be that the number of baccalaureate nurses in this study (N = 7) was too small to present an accurate picture or to be compared with previous findings.

Essentially no linear relationship was found between the technological variables and role conceptions. As suggested by Hall (1968), however, it may be that certain dimensions of a bureaucratic or professional role (attitudinal factors as opposed to structural) are supported by different organizational structures as goals (p. 95).

Thus, certain aspects of the technology and instrumentation variables are consistent with, for example, a bureaucratic role concept, and other factors are not. Considering this logic it is more understandable why nurses from two nursing units scoring close together on a role concept scale did not have similar scores for the technology or instrumentation variables. This may explain why nurses from medicine and psychiatry, at opposite extremes of the service role scale had similar scores on both the variability and instability factors.

Although the role conception factors did not correlate among themselves greater than 0.16 (between professional and bureaucratic) the possibility of a relationship between roles, or interaction between roles and nursing unit technology cannot be ignored. The importance of a service ideal to the professional role (Goode, 1964) suggests there may indeed be a relationship between role concepts, thus influencing the measurement of role conceptions relative to other variables of interest.

Implications

Implications for nursing practice, administration, and education will be discussed, as well as implications for further research. The limitations of this study should be kept in mind, however, when reviewing the implications.

Nursing Practice

Results of this study have implications for nurses from all nursing units in terms of the interaction between nursing practice and nursing technology. The intensive care unit is a highly unstable technical area that requires much nursing time be spent using diagnostic equipment and assisting with procedures. With such an emphasis on equipment oriented activities it is important that nurses working in intensive care units also spend time attending to the psychosocial needs of patients and families.

The renal unit as expected, was associated with a high degree of life support equipment, and, as well, nurses also had high scores on uncertainty, suggesting the nursing focus was not only on the equipment but also on the psychosocial needs of patients. This practice should be supported as the success of treating patients with end stage renal disease is partly dependent on helping them adjust to the limitations of their illness.

Nurses in the medical unit had high scores on "equipment apprehension" suggesting that they are quite anxious about the use of equipment. Since they are only infrequently in contact with highly complex equipment it may not be necessary to have these nurses highly trained in managing technical equipment but rather to provide clinical specialists familiar with technical equipment to advise and teach medical unit nurses when patients requiring complex equipment support are admitted to that unit.

Psychiatry uses very little equipment but showed a high level of uncertainty. This of course, is related to the uncertainty of types of patients and success of nursing techniques and the need to focus on the psychosocial needs of patients. Teamwork is important in this type of technology, and as such team conferences with both staff and patients should be planned.

Nursing Administration

Implications of this study for nursing administration relate to the values and beliefs congruent with different role concepts, and the loyalty nurses with different concepts place on organizational, professional, or patient centred goals. Since loyalty to the service ideal seems to increase with age and experience, administrators should consider this when deciding if nurses with these values should be at the bedside or in clinical leadership positions. Nurses holding bureaucratic role concepts may be more effective in managerial positions with head nurse or supervisory responsibilities. Nurses with professional role concepts value education, autonomy, and technical and medical skills. These nurses may be able to offer most to the hospital as nursing educators or clinical nursing specialists. In evaluating nursing staff, hospital administrators may wish to keep in mind what differences may exist between the value orientation of the nurse, and the requirements of the work environment. A "dysfunctional" nurse may be more effective working in a unit or position that better utilizes her skill and decreases her potential for role conflict.

Nursing Education

The results of this study will be discussed in terms of implications for hospital inservice education. Because a lot of diagnostic equipment is used in the intensive care unit, inservice programs focusing on new procedures or the use of new kinds of equipment will be of benefit to this nursing staff. Since complex equipment is infrequently required on the medical unit, nurses may gain most from occasional lectures or demonstrations on the use of equipment. Directly linking these programs to the use of equipment on the unit would likely help relieve the apprehension and frustration found. The psychiatric unit uses very little equipment, but a high level of technological uncertainty suggests that inservice education be directed toward helping the nurses plan appropriate nursing care to meet the psychosocial needs of patients. The effective use of team conferences to discuss and plan appropriate nursing techniques would be a helpful means of providing opportunities for psychiatric nurses.

Nursing Research

This study should be repeated with a larger sample of hospitals and a greater number of nurses and types of units in order to make any kinds of generalizations. The instrumentation questions should be submitted to content experts to establish content validity and show that the items included are representative of the universe of possible items. The measurement of nurses' perceptions of the instrumentation variables should be correlated with an objective measure to establish concurrent validity.

More work is needed on the measurement of role conceptions. It is possible that, as suggested by Minehan (1977), the beliefs that Corwin's instrument were based on have changed and this tool is no longer appropriate for the 1980's. There have been both social and professional changes since Corwin designed the Role Conception Scale in the 1960's. An increasing number of women have entered the labour force, to some extent challenging the traditional status of women in the work force. Many nurses today see nursing as a career rather than as part time employment, and this has been partly responsible for altering the relationship nurses have with the hospital administration and with their professional colleagues. The focus of nursing education and practice on the "self care concept" has been influential in defining the nurse-patient relationship, and hence may also be a factor in changing the role conceptualization of nurses today. Further exploration using factor analysis to more clearly delineate the types of roles is suggested.

In the long term much more study is required before conclusions can be drawn regarding the relationship between technology and the role conceptions of nurses.

SELECTED REFERENCES

Amber, G. & Amber, P. Anatomy of Automation. Englewood Cliffs, New Jersey: Prentice Hall, 1962.

Anderson, E. The role of the nurse. (Series 2, No. 1) London: Royal College of Nursing, 1973.

Benne, K. & Bennis, W. Role confusion and conflict in nursing. American Journal of Nursing, 1959, 19, pp. 196-198; 380-383.

Benner, P. & Kramer, M. Role conceptions and integrative role behavior of nurses in special care and regular hospital nursing units. Nursing Research, 1972, 21(1), 20-29.

Bevis, M. Role conception and the continuing learning needs of the neophyte collegiate nurse. Nursing Research, 1973, 22(3), 207-216.

Biddle, B. & Thomas, E. Role theory: concepts and research. New York: John Wiley & Sons, 1966.

Birckhead, L. Nursing and the technotronic age. Journal of Nursing Administration, February 1978, 16-19.

Blau, P. & Scott, W. Formal organizations: A comparative approach. San Francisco: Chandler Publishing Co., 1962.

Brown, C. Some nursing problems in responding to science and technology. In E. Lucas (Ed.), Nurses and Health Care, London: King Edwards Hospital Fund, 1976.

Brown, E. Nursing and patient care. In F. Davis (Ed.), The Nursing Profession. London: John Wiley & Sons, 1966.

Corwin, R. Role conception and mobility aspiration. Unpublished doctoral dissertation, University of Minnesota, 1960.

Corwin,R. The professional employee: A study of conflict in nursing roles. American Journal of Sociology, 1961, 66, 604-615.

Corwin, R. & Taves, M. Some concommitants of bureaucratic and professional conceptions of the nurse role. Nursing Research, 1962, 11(4), 223-227.

Cronbach, L. & Meehl, P. Construct validity in psychological tests. Psychological Bulletin, 1955, 52, 281-301.

Davis, F. & Olson, V. Baccalaureate students' images of nursing: A study of change, consensus and consonance in the first year. Nursing Research, 1964, 13, 8-15.

Ellis, R. Fallibilities, fragments, and frames. Nursing Research, 1977, 26(3), 177-182.

Etzioni, A. The semi-professions and their organizations. New York: Free Press, 1969.

Farmer, E. The impact of technology on nursing. Nursing Mirror, September 28, 1978, pp. 17-20.

Glass, G. & Stanley, J. Statistical methods in education and psychology. Englewood Cliffs, New Jersey: Prentice Hall, 1970.

Goode, W. The theoretical limits of professionalization. In A. Etzioni (Ed.), The semi professions and their organizations. New York: Free Press, 1969.

Guilford, J. Psychometric Methods. New York: McGraw Hill, 1954.

Hage, J. & Aiken, M. Routine technology, social structure, and organizational goals. Administrative Science Quarterly, 1969, 14, 366-376.

Hall, R. Professionalization and bureaucratization. American Sociological Review, 1968, 33, 92-104.

Hasenfeld, Y. & English, R. (Eds.). Human Service Organizations. Ann Arbor: University of Michigan Press, 1977.

Hickson, D., Pugh, D. & Physey, D. Operations technology and organizational structure: an empirical reappraisal. Administrative Science Quarterly, 1968, 14, 378-397.

Hughes, E., MacGill, H. & Deutscher, I. Twenty thousand nurses tell their story. Philadelphia: J. B. Lippincott, 1958.

Johnson, M. & Martin, H. A sociological analysis of the nurse role. In J. Skipper, Jr. & R. Leonard (Eds.), Social interaction and patient care. Toronto: J. B. Lippincott, 1965.

Katz, F. Nurses. In A. Etzioni (Ed.). The semi-professions and their organization. New York: Free Press, 1969.

Kerlinger, F. Foundations of behavioral research. New York: Holt, Rinehart and Winston, 1973.

Kovner, A. The nursing unit: a technological perspective. Ph.D. Dissertation, Pittsburg: University of Pittsburg, School of Public and International Affairs, 1966.

Kramer, M. Some effects of exposure to employing bureaucracies on the role conceptions and role deprivations of neophyte collegiate nurses. Unpublished doctoral dissertation, Stanford University, 1966.

Leatt, P. & Schneck, R. Nursing subunit technology: A replication. Working paper, University of Alberta, 1980.

Lenihan, J. & Abbey, J. Symbiosis: Nursing and the bioengineer. Nursing Clinics of North America, 1978, 13(4), 589-595.

Leonard, A. & Rogers, I. Role imagery: A delicate balance. Journal of Nursing Education, 1978, 17(3), 42-46.

Lewandowski, L. & Kramer, M. Role transformation of special care unit nurses: A comparative study. Nursing Research, 1980, 29(3), 170-179.

Lindesmith, A. & Strauss, A. Social Psychology. New York: Henry Holt & Co., 1956.

Lynch, B. An empirical assessment of Perrow's technology construct. Administrative Science Quarterly, 1974, 19(3), 338-356.

Mauksch, H. The organizational context of nursing practice. In F. Davis (Ed.), The nursing profession. London: John Wiley & Sons, 1966.

Mehrens, W. & Ebel, R. (Eds.). Principles of educational and psychological measurement. Skokie, Illinois: Rand McNally, 1967.

Minehan, P. Nurse role conception. Nursing Research, 1977, 26(5), 374-379.

Mohr, L. Organizational technology and organizational structure. Administrative Science Quarterly, 1971, 16(4), 444-459.

Overton, P., Schneck, R. & Hazlett, C. B. An empirical study of the technology of nursing subunits. Administrative Science Quarterly, 1977, 22, 203-219.

Padilla, G. V. (Ed.). The clinical nurse specialist and improvement of nursing practice. Nursing Digest, 1979, Vol. 6.

Parsons, T. The social system. New York: Free Press, 1964.

Perrow, C. A framework for comparative analysis of organizations. American Sociological Review, 1967, 32, 194-208.

Perrow, C. Organizational analysis: A sociological view. Belmont, California: Wadsworth Publishing, 1970.

Reissman, L. & Rohrer, J. Change and dilemma in the nursing profession. New York: G. P. Putman's Sons, 1957.

Sarbin, T. Role theory. In G. Lindzey (Ed.), Handbook of social psychology. Cambridge: Addision & Wesley, 1954.

Saunders, L. The changing role of nurses. American Journal of Nursing, 1954, 54(9), 1094-1098.

Schulman, S. Basic functional roles in nursing: Mother surrogate and healer. In E. Jaco (Ed.), Patients, physicians and illness Glencoe, Illinois: Free Press, 1958.

Simms, L. The clinical nursing specialists: An experiment. Nursing Outlook, 1973.

Skipper, J. Jr. The role of the hospital nurse: Is it instrumental or expressive? In J. Skipper, Jr. & R. Leonard (Eds.), Social interaction and patient care. Toronto: J. B. Lippincott, 1965.

Skipper, J. Jr. & Leonard, R. Social interaction and patient care. Philadelphia: J. B. Lippincott, 1965.

Stinson, S. Deprofessionalization in nursing? Unpublished doctoral dissertation. Teachers College, Columbia University, 1969.

Thompson, J. Organizations in action. New York: McGraw Hill, 1967.

Weber, M. The theory of social and economic organizations. Translated by T. Parsons. New York: Free Press, 1947.

Weidenbach, E. Family nurse practitioner for maternal and child care. Nursing Outlook, 1965, 13, 50-52.

Wilensky, H. The professionalization of everyone? American Journal of Sociology, 1964, 70(2), 137-158.

Woodward, J. Industrial organizations: theory and practice. London: Oxford University Press, 1965.

APPENDIX A

Questionnaire to Nurses

THE UNIVERSITY OF ALBERTA

QUAECUMQUE VERA

FACULTY OF NURSING

CLINICAL SCIENCES BUILDING
EDMONTON, CANADA T6G 2G3

Dear Colleague:

This questionnaire is part of a study looking at the work environment of nurses in different nursing units in hospitals. We would appreciate your opinions about different situations that arise in nursing units, and about different kinds of equipment used in giving patient care. Even though you may feel some of the questions do not apply to your nursing unit, please attempt to answer all items, checking the answer that most closely represents your opinion.

Please do not confer with your colleagues or friends; we are interested in each person's opinion. The questionnaire takes about 15 minutes to complete. No identification is required from you on the questionnaire. Your responses will remain completely anonymous.

A self-addressed envelope is provided for you to return the completed questionnaire. Please return the sealed envelope through the hospital mail. It will be much appreciated if you would complete and return the questionnaire by 1980. Thank you very much for your cooperation.

Yours truly,

Sharon Campbell

Sharon Campbell
Faculty of Nursing
University of Alberta

P.S. If you have any questions or concerns regarding this survey please feel free to call me at 432-6487.

EVEN THOUGH SOME OF THE QUESTIONS ARE COMPLEX WE WOULD APPRECIATE YOUR ANSWERING ALL ITEMS AND GIVING YOUR OPINIONS ABOUT THE QUESTIONS ASKED.

A. ABOUT YOUR WORK ENVIRONMENT

BESIDE EACH OF THE STATEMENTS BELOW, PLEASE INDICATE BY CHECKING (✓) THE ONE ANSWER THAT MOST CLOSELY REPRESENTS YOUR OPINION.

1. HOW MANY OF THE PATIENTS ON YOUR UNIT REQUIRE SOPHISTICATED MONITORING EQUIPMENT (E.G., CARDIAC MONITOR, IVAC IV REGULATOR) AT SOME TIME DURING THEIR STAY ON YOUR UNIT? (CHECK ONE)

_____ALMOST ALL OR ALL
_____MANY
_____FEW
_____ALMOST NONE OR NONE

2. HOW MANY OF THE PATIENTS ON YOUR UNIT REQUIRE LIFE SUPPORT EQUIPMENT (E.G., VENTILATORS, DIALYSIS MACHINE) AT SOME TIME DURING THEIR STAY ON YOUR UNIT? (CHECK ONE)

_____ALMOST ALL OR ALL
_____MANY
_____FEW
_____ALMOST NONE OR NONE

3. HOW OFTEN ARE YOU RESPONSIBLE FOR OPERATING MONITORING OR LIFE SUPPORT EQUIPMENT NEEDED FOR PATIENT CARE? (CHECK ONE)

_____ONCE A WEEK OR LESS OFTEN
_____2 OR 3 TIMES PER WEEK
_____ABOUT ONCE EVERY SHIFT
_____SEVERAL TIMES PER SHIFT OR CONTINUOUSLY

4. ON YOUR UNIT HOW OFTEN DO YOU REPAIR OR "TROUBLE SHOOT" EQUIPMENT THAT IS NOT WORKING PROPERLY AND IS NEEDED FOR PATIENT CARE? (CHECK ONE)

_____ONCE A WEEK OR LESS OFTEN
_____2 OR 3 TIMES PER WEEK
_____ABOUT ONCE EVERY 24 HRS.
_____SEVERAL TIMES PER SHIFT OR MORE OFTEN

5. HOW OFTEN IS PATIENT CARE ON YOUR UNIT DELAYED BECAUSE NEEDED TECHNICAL EQUIPMENT (NOT INCLUDING PROCEDURE TRAYS) IS NOT AVAILABLE? (CHECK ONE)

_____VERY FREQUENTLY
_____FREQUENTLY
_____INFREQUENTLY
_____VERY INFREQUENTLY

6. HOW FREQUENTLY DURING A SHIFT IS IT NECESSARY FOR YOU TO RESPOND TO EQUIPMENT ALARMS, INCLUDING FALSE ALARMS? (CHECK ONE)

______VERY FREQUENTLY
______FREQUENTLY
______INFREQUENTLY
______VERY INFREQUENTLY

7. HOW FREQENTLY DO YOU FIND THE TECHNICAL EQUIPMENT USED ON YOUR NURSING UNIT NOISY? (CHECK ONE)

______VERY FREQUENTLY
______FREQUENTLY
______INFREQUENTLY
______VERY INFREQUENTLY

8. TO WHAT EXTENT DO YOU FIND THE TECHNICAL EQUIPMENT USED ON YOUR UNIT TO BE FRUSTRATING? (CHECK ONE)

______NOT AT ALL
______TO SOME EXTENT
______TO A MODERATE EXTENT
______TO A GREAT EXTENT

9. TO WHAT EXTENT DO YOU FEEL APPREHENSIVE ABOUT BEING RESPONSIBLE FOR THE OPERATION OF TECHNICAL EQUIPMENT ON YOUR UNIT? (CHECK ONE)

______TO NO EXTENT
______TO SOME EXTENT
______TO A MODERATE EXTENT
______TO A GREAT EXTENT

10. WHAT KINDS OF ALARMS DOES THE MAJORITY OF THE TECHNICAL EQUIPMENT ON YOUR UNIT HAVE? (CHECK ONE)

______ONLY AUDITORY ALARMS
______ONLY VISUAL ALARMS
______BOTH AUDITORY AND VISUAL ALARMS
______OTHER (SPECIFY)

11. APPROXIMATELY WHAT PERCENTAGE OF NURSING TIME PER DAY DO YOU SPEND ASSEMBLING OR CALIBRATING EQUIPMENT BEFORE STARTING DIRECT PATIENT CARE ACTIVITIES? (CHECK ONE)

______0 - 5%
______6 - 25%
______26 - 50%
______51 - 75%
______76 - 100%

12. APPROXIMATELY WHAT PERCENTAGE OF THE PATIENT'S BEDSIDE AREA IS TAKEN UP BY TECHNICAL EQUIPMENT? (CHECK ONE)

______0 - 5%
______6 - 25%
______26 - 50%
______51 - 75%
______76 - 100%

13. APPROXIMATELY WHAT PERCENTAGE OF YOUR SHIFT IS SPENT ASSISTING PHYSICIANS OR OTHER HEALTH PROFESSIONALS WITH PROCEDURES IN WHICH TECHNICAL EQUIPMENT IS USED ON YOUR UNIT? (CHECK ONE)

_____0 - 5%

[✓ _____6 - 25%]

_____26 - 50%

_____51 - 75%

_____76 - 100%

14. HOW MUCH TRAINING DO NURSES ON YOUR UNIT NEED BEFORE USING ANY OF THE STANDARD TECHNICAL EQUIPMENT WITHOUT SUPERVISION? (CHECK ONE)

_____LESS THAN ONE WEEK

_____1 - 2 WEEKS

_____3 - 6 WEEKS

_____MORE THAN 6 WEEKS

15. ON YOUR UNIT THERE ARE MANY EMERGENCIES WHEN IMMEDIATE NURSING ACTIONS MUST BE TAKEN IN RESPONSE TO CHANGES IN PATIENTS' CONDITIONS. (CHECK ONE)

_____STRONGLY AGREE

_____AGREE

_____DISAGREE

_____STRONGLY DISAGREE

16. IN GENERAL, DOES THE EQUIPMENT USED ON YOUR UNIT ALLOW YOU TO SPEND MORE TIME GIVING DIRECT PATIENT CARE? (CHECK ONE)

_____YES

_____NO

17. IN GENERAL, DOES THE EQUIPMENT USED ON YOUR UNIT DECREASE YOUR WORK LOAD? (CHECK ONE)

_____YES

_____NO

BESIDE EACH OF THE FOLLOWING STATEMENTS PLEASE INDICATE YOUR RESPONSE BY CHECKING (✓) ONE.

IN ALL QUESTIONS YOU ARE ASKED TO ESTIMATE A PERCENTAGE.

			PERCENT		
	0-5%	6-25%	26-50%	51-75%	76-100%
18. IN YOUR ESTIMATION, WHAT PERCENTAGE OF PATIENTS ON YOUR UNIT NEED NURSING OBSERVATIONS MORE OFTEN THAN ONCE EVERY HALF HOUR?	( )	( )	( )	( )	( )
19. WHAT PERCENTAGE OF THE PATIENTS WOULD YOU SAY HAVE SIMILAR HEALTH PROBLEMS (OR DIAGNOSES)?	( )	( )	( )	( )	( )
20. WHAT PERCENTAGE OF THE PATIENTS ON YOUR UNIT HAVE COMPLEX PROBLEMS THAT ARE NOT WELL UNDERSTOOD?	( )	( )	( )	( )	( )
21. ON SOME UNITS THERE IS GREATER PRESSURE TO GIVE NURSING CARE QUICKLY BECAUSE OF PATIENTS' CRITICAL CONDITIONS. WHAT PERCENTAGE OF THE TIME IS THERE A GREATER TIME PRESSURE ON YOUR UNIT?	( )	( )	( )	( )	( )
22. WHAT PERCENTAGE OF THE NURSING CARE ON YOUR UNIT IS DIRECTED AT MEETING PATIENT'S SOCIO-PSYCHOLOGICAL NEEDS (AS OPPOSED TO PHYSICAL NEEDS)?	( )	( )	( )	( )	( )
23. WHAT PERCENTAGE OF THE NURSING CARE GIVEN RELIES UPON NURSES' INTUITION RATHER THAN ON SET PROCEDURES OR ROUTINES?	( )	( )	( )	( )	( )
24. WHAT PERCENTAGE OF THE NURSING CARE PROCEDURES ARE SIMILAR FOR MOST OF THE PATIENTS ON YOUR UNIT?	( )	( )	( )	( )	( )
25. WHAT PERCENTAGE OF THE DECISIONS MADE BY NURSES DURING THEIR WORK ARE REPETITIVE FROM ONE DAY TO THE NEXT?	( )	( )	( )	( )	( )

B. ABOUT NURSING

THIS SECTION CONSISTS OF A LIST OF 22 HYPOTHETICAL SITUATIONS IN WHICH A NURSE MIGHT FIND HERSELF.

YOU ARE ASKED TO INDICATE BOTH:

(A) WHETHER YOU THINK THE SITUATION SHOULD BE THE IDEAL FOR NURSING.

(B) WHETHER YOU HAVE OBSERVED THE SITUATION IN YOUR HOSPITAL.

NOTICE THAT TWO (2) QUESTIONS MUST BE ANSWERED FOR EACH SITUATION. CONSIDER THE QUESTIONS OF WHAT OUGHT TO BE THE CASE AND WHAT IS REALLY THE CASE SEPARATELY: TRY NOT TO LET YOUR ANSWER TO ONE QUESTION INFLUENCE YOUR ANSWER TO THE OTHER QUESTION. GIVE YOUR OPINIONS; THERE ARE NO "WRONG" ANSWERS.

BE SURE TO PLACE A CHECK MARK (✓) AFTER BOTH QUESTIONS A AND B.

26. ONE REGISTERED NURSE, WHO IS AN OTHERWISE EXCELLENT NURSE EXCEPT THAT SHE IS FREQUENTLY LATE FOR WORK, IS NOT BEING CONSIDERED FOR PROMOTION, EVEN THOUGH SHE SEEMS TO GET THE IMPORTANT WORK DONE.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

27. A HEAD NURSE AT ONE HOSPITAL INSISTS THAT THE RULES BE FOLLOWED IN DETAIL AT ALL TIMES, EVEN IF SOME OF THEM DO SEEM IMPRACTICAL.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

28. A REGISTERED STAFF NURSE OBSERVES ANOTHER REGISTERED STAFF NURSE OR NURSING AIDE WHO HAS WORKED IN THE HOSPITAL FOR MONTHS VIOLATING A VERY IMPORTANT HOSPITAL RULE OR POLICY AND MENTIONS IT TO THE HEAD NURSE OR SUPERVISOR.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

29. WHEN A SUPERVISOR AT ONE HOSPITAL CONSIDERS A NURSE FOR PROMOTION, ONE OF THE MOST IMPORTANT FACTORS IS THE NURSES LENGTH OF EXPERIENCE ON THE JOB.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

30. IN TALKING TO ACQUAINTANCES WHO AREN'T IN NURSING, A REGISTERED NURSE GIVES HER OPINIONS ABOUT THINGS SHE DISAGREES WITH IN THE HOSPITAL.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

31. A REGISTERED NURSE IS INFLUENCED MAINLY BY THE OPINIONS OF HOSPITAL AUTHORITIES AND DOCTORS WHEN SHE CONSIDERS WHAT TRULY "GOOD" NURSING IS.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

32. ONE REGISTERED NURSE TRIES TO PUT HER STANDARDS AND IDEALS ABOUT GOOD NURSING INTO PRACTICE EVEN IF HOSPITAL RULES AND PROCEDURES PROHIBIT IT.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

33. ONE REGISTERED NURSE DOES NOT DO ANYTHING WHICH SHE IS TOLD TO DO UNLESS SHE IS SATISFIED THAT IT IS BEST FOR THE WELFARE OF THE PATIENT.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

34. ALL REGISTERED NURSES IN A HOSPITAL ARE ACTIVE MEMBERS IN PROFESSIONAL NURSING ASSOCIATIONS, ATTENDING MOST CONFERENCES AND MEETINGS OF THE ASSOCIATION.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

35. ALL REGISTERED NURSES IN A HOSPITAL SPEND, ON THE AVERAGE, AT LEAST SIX HOURS A WEEK READING PROFESSIONAL JOURNALS AND TAKING REFRESHER COURSES.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

36. SOME NURSES TRY TO LIVE UP TO WHAT THEY THINK ARE THE STANDARDS OF THEIR PROFESSION, EVEN IF OTHER NURSES ON THE WARD OR SUPERVISORS DON'T SEEM TO LIKE IT.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO
B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

37. SOME REGISTERED NURSES BELIEVE THAT THEY CAN GET ALONG VERY WELL WITHOUT A LOT OF FORMAL EDUCATION, SUCH AS REQUIRED FOR A B.SC., M.S., OR M.A. COLLEGE DEGREE.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

38. AT SOME HOSPITALS WHEN A REGISTERED NURSE IS CONSIDERED FOR PROMOTION, ONE OF THE MOST IMPORTANT FACTORS CONSIDERED BY THE SUPERVISOR IS HER KNOWLEDGE OF, AND ABILITY TO USE, JUDGEMENT ABOUT NURSING CARE PROCEDURES.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

39. SOME HOSPITALS TRY TO HIRE ONLY NURSES WHO TOOK THEIR TRAINING IN COLLEGES AND UNIVERSITIES WHICH ARE EQUIPPED TO TEACH THE BASIC THEORETICAL KNOWLEDGE OF NURSING SCIENCE.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

40. AT SOME HOSPITALS REGISTERED NURSES SPEND MORE TIME AT BEDSIDE NURSING THAN ANY OTHER NURSING TASK.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

41. HEAD NURSES AND DOCTORS AT ONE HOSPITAL ALLOW THE NURSE TO TELL PATIENTS AS MUCH ABOUT THEIR PHYSICAL AND EMOTIONAL CONDITION AS THE NURSE THINKS IS BEST FOR THE PATIENT.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

42. A DOCTOR ORDERS A PATIENT TO SIT UP IN A WHEEL CHAIR TWICE A DAY, BUT A REGISTERED NURSE BELIEVES THAT HE IS NOT EMOTIONALLY READY TO SIT UP; THE DOCTOR RESPECTS HER OPINION AND CHANGES THE TREATMENT.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

43. DOCTORS AND HEAD NURSES AT THE HOSPITAL RESPECT AND REWARD NURSES WHO SPEND TIME TALKING WITH PATIENTS IN AN ATTEMPT TO UNDERSTAND THE HOSTILITIES, FEAR AND DOUBT WHICH MAY EFFECT THE PATIENT'S RECOVERY.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

44. A REGISTERED NURSE BELIEVES THAT A PATIENT OUGHT TO BE REFERRED TO A PSYCHOLOGIST OR A PUBLIC HEALTH NURSE AND TRIES TO CONVINCE THE DOCTOR OF THIS, EVEN THOUGH HE IS DOUBTFUL.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

45. AT ONE HOSPITAL THE NURSE'S ABILITY TO UNDERSTAND THE PSYCHOLOGICAL AND SOCIAL FACTORS IN THE PATIENT'S BACKGROUND IS REGARDED AS MORE IMPORTANT THAN HER KNOWLEDGE OF SUCH OTHER NURSING SKILLS AS HOW TO GIVE ENEMAS, IV'S, OR HOW TO CHART ACCURATELY.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

46. SOME REGISTERED NURSES BELIEVE THAT THE PROFESSIONAL NURSES WHO SHOULD BE REWARDED MOST HIGHLY ARE THE ONES WHO REGARD NURSING AS A CALLING IN WHICH ONE'S HUMANITARIAN BELIEFS CAN BE PUT INTO PRACTICE.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

47. AT SOME HOSPITALS THE REGISTERED NURSES WHO ARE MOST SUCCESSFUL ARE THE ONES WHO ARE REALISTIC AND PRACTICAL ABOUT THEIR JOBS, RATHER THAN THE ONES WHO ATTEMPT TO LIVE ACCORDING TO IDEALISTIC PRINCIPLES ABOUT SERVING HUMANITY.

A. IS THIS THE WAY IT SHOULD BE? _____YES _____NO

B. IS THIS THE WAY IT ACTUALLY IS? _____YES _____NO

C. ABOUT YOURSELF

48. HOW LONG HAVE YOU BEEN WORKING ON THIS NURSING UNIT? (CHECK ONE)

_____6 MONTHS OR LESS
_____6 MONTHS TO 1 YEAR
_____1 YEAR TO 3 YEARS
_____3 YEARS TO 6 YEARS
_____6 YEARS TO 9 YEARS
_____9 YEARS OR MORE

49. HOW OLD ARE YOU? (CHECK ONE)

_____UNDER 20 YEARS
_____20 TO 29 YEARS
_____30 TO 39 YEARS
_____40 TO 59 YEARS
_____50 YEARS OR MORE

50. WHAT IS THE MAJOR SPECIALITY OF YOUR UNIT? (CHECK ONE)

_____MEDICAL
_____INTENSIVE CARE
_____RENAL DIALYSIS
_____PSYCHIATRIC

51. WHERE DID YOU RECEIVE YOUR BASIC NURSING EDUCATION? (CHECK ONE)

_____HOSPITAL TRAINING SCHOOL
_____COMMUNITY COLLEGE
_____UNIVERSITY
_____OTHER (SPECIFY)
____

52. WHAT LEVEL OF NURSING EDUCATION HAVE YOU COMPLETED? (CHECK MORE THAN ONE IF NECESSARY)

_____MASTER'S DEGREE
_____BACHELOR'S DEGREE
_____R.N. DIPLOMA
_____R.P.N. DIPLOMA
_____OTHER (SPECIFY)
____
_____CLINICAL POST GRADUATE COURSE: SPECIALITY_____________________

53. HOW MANY YEARS OF NURSING EXPERIENCE HAVE YOU HAD SINCE COMPLETION OF YOUR BASIC NURSING EDUCATION PROGRAM? (CHECK ONE)

_____LESS THAN 1 YEAR
_____1 TO 3 YEARS
_____3 TO 6 YEARS
_____6 TO 9 YEARS
_____9 YEARS OR MORE

THANK YOU VERY MUCH FOR YOUR COOPERATION.